BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 27 1940

SOME NOTES ON ABDOMINAL INJURIES

BY

G. GREY TURNER, M.S., F.R.C.S.

Professor of Surgery, University of London; Director of Surgical Unit, British Postgraduate Medical School

Recent discussions on problems connected with abdominal injuries, and the paper by Ambrose Lockwood in the *British Medical Journal* of March 9, have all stressed the importance of keeping resection of the injured intestine in reserve, and the young surgeon, without much experience of abdominal work, is urged to look upon repair by suture rather than resection as the first line of defence. Yet little has been said about this matter of repair, and of the diagrams which I have recently seen Fig. 1 portrays

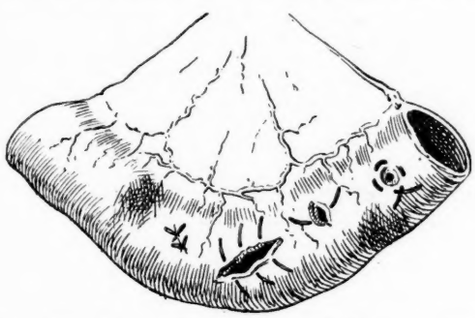

FIG. 1.—Small wounds in bowel suitable for closure by simple suture (A. L. Lockwood).

only the very simple injuries in which no one could have any doubt as to the wisdom of employing the purse-string method or a simple through-and-through continuous stitch.

Repair by Suture

The inexperienced man, however, may well be in grave doubt as to the possibility of repair when confronted with the much more serious injuries that are not uncommon in warfare. In the further diagrams here reproduced I have depicted some of these injuries, all of which can be dealt with by suture, although at the completion of the operation the piece of intestine involved may look much more like the caecum or some other part of the large bowel than the small intestine. Fortunately this is a matter of no moment, for the old adage applies, "Handsome is as handsome does," and the strangest-looking piece of patched-up small bowel will function naturally. There are only two things which must be avoided at all costs: one is the formation of a stricture, and the other the construction of a diverticulum. The former can be avoided by taking care to suture longitudinal or oblique wounds in a direction transverse to the axis of the gut, and the latter by starting the suture of any considerable wound at the extremities and working towards the centre. If such a wound as is shown in Fig. 2 is stitched from one end to the other it is quite likely that a pocket will be formed where the suture finishes, and this pocket may pout out and distend until it is like a wide-mouthed diverticulum. Such pockets are dangerous, and I have seen them give way, with secondary

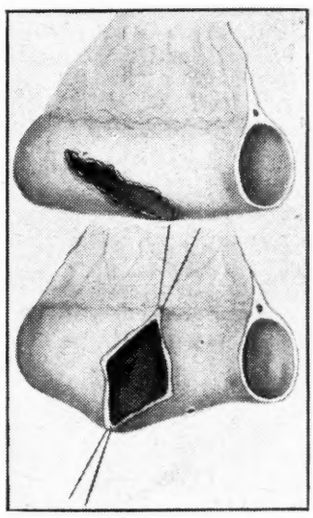

FIG. 2.—Suture of oblique wound in transverse axis of bowel.

leakage into the peritoneum. I have heard it urged that intestinal wounds will do better if the edges are trimmed, but that is really very seldom necessary. Of course, should they be very much frayed there is no objection whatever to trimming them up to some extent with a pair of scissors, but there is no real need for any formal excision of the torn edges or to be sure that the edges are one straight line. It is indeed essential that the mucous membrane should be in excess, for it is the best protection for the vulnerable submucous layer, where haematomas form and sepsis is apt to spread. When there are two small holes close to one another it is sometimes very much better to divide the intervening bridge between them and to suture the resulting rent in the transverse axis of the bowel, as is illustrated in Fig. 3.

Sometimes the edges of the bowel wall near a laceration which can well be closed are friable and bruised, and in these circumstances it may be felt that some additional support would be wise. If there is only one such area

then it may be comfortably wrapped in the edge of the omentum, which should be attached to the bowel at one or two points by catgut sutures. But there is just a little risk in using the omentum, for it may be elongated into the form of a band, which may subsequently be the cause of a serious obstruction. There is also the difficulty that if more than one area has to be dealt with it is not easy to employ the omentum in several different situations. When only a small graft is required a piece of omentum may be completely detached and used as a patch. Another plan which can be recommended is to fold two repaired but bruised portions of intestine together and to suture them face to face, so to speak, so

FIG. 3.—Two small tears converted into one wound for suture in transverse axis.

that the one supports the other (Fig. 4). This may appear to be tempting Providence by producing what may look rather like a serious kink; but the small intestine is wonderful in the way it can function despite numerous kinks and corners, and in the course of time the reparative processes of Nature have great power in gradually undoing kinks that are not required.

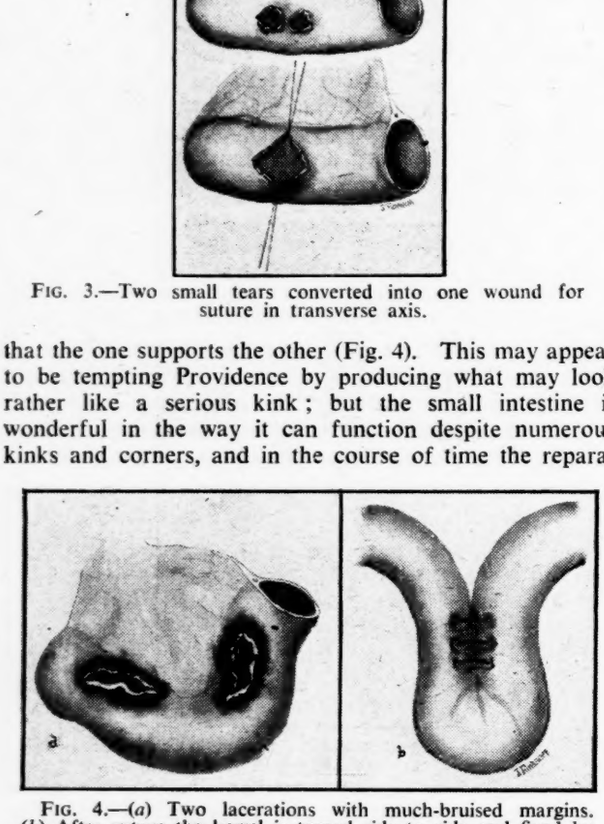

FIG. 4.—(*a*) Two lacerations with much-bruised margins. (*b*) After suture the bowel is turned side to side and fixed by a few points of suture.

When the bowel is completely or almost completely divided, as shown in Fig. 5, formal resection is not required. It is only necessary to trim away any redundant mucous membrane or much-lacerated edge and to proceed with the suturing as if the tear had been deliberate. When the mesenteric border has been spared, all anxiety about the bogy of the mesenteric angle is at an end. Difficulties will arise when the small bowel has been separated from its mesentery (Fig. 6). A short separation, perhaps an inch or an inch and a half, will probably be quite without evil effect, but a longer separation from its blood supply may be followed by necrosis starting along the anti-mesenteric border. Careful inspection of the bowel may indicate a dusky area which does not respond to warm sponging and in which the colour tends to get worse the longer it is under observation, even with the patient fully oxygenated. In these circumstances the doubtful area may be tucked in by a few Lembert sutures, just as one would tuck in a small area on the summit of a loop released from the sac of a strangulated

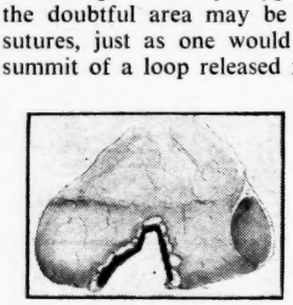

FIG. 5.

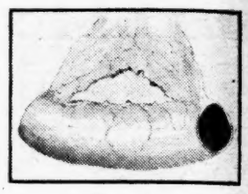

FIG. 6.

FIG. 5.—Suitable for repair by suture; resection not necessary.

FIG. 6.—An area of small bowel separated from its blood supply by laceration of the mesentery.

hernia. But if the involved portion of bowel is of considerable extent resection will certainly be wise, but it may be that there are multiple injuries and that the total intervention must be reduced to a minimum if the patient is to leave the table alive. It is in these circumstances that the omento-handkerchief wrapped round such a portion of bowel and attached at the margins by one or two sutures may be very valuable.

Short-circuiting

I would utter a word of caution against short-circuiting a much repaired and very much damaged piece of intestine unless it is done quite close to the injury—that is, just far enough away to ensure that healthy loops of intestine can be joined. There may be occasions when it may be wise, but it is a very serious thing to make such an anastomosis between a point which may ultimately prove to be high in the small bowel and one near the caecum or even into the large intestine itself. In the last war several patients suffered grave discomfort and some severe inanition because such short circuits had been established, and, although it is a method proper enough when it can be done after careful consideration, it is not very wise as a hasty emergency. If resection is to be carried out, then let the anastomosis be by the end-to-end method. It requires the minimum of suturing, saves a great deal of time, is physiologically sound, and there is no reason why it should not be entirely efficient. But it is most important that the margins of the bowel at the mesenteric

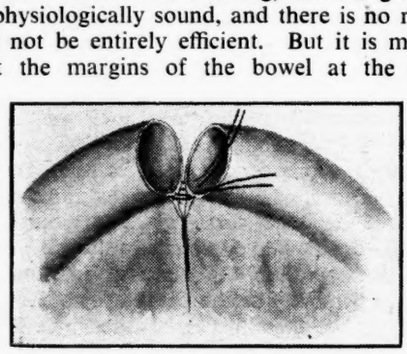

FIG. 7.—First stage of end-to-end anastomosis. Mattress sutures at mesenteric attachment.

border should be everted into the bowel lumen, and that the mucous membrane should not be allowed to protrude into the small area at the mesenteric angle where there is no peritoneum. The way to avoid this trouble is to approximate this part of the bowel with two or at most three mattress sutures passed from inside the bowel (Fig. 7). The rest of the anastomosis can be made by a

continuous through-and-through suture with the needle always passed from the mucous membrane side. By adopting this latter method there will be much less tendency for the mucous membrane to appear on the peritoneal aspect, and only a Lembert suture here and there will be necessary. If there is a gap in the mesentery it is certainly wise to draw the edges together, and this will be the concluding stage of the resection. Any suture that is used for drawing the margins together must studiously avoid vessels. In fact, the gap is best closed by taking hold of small portions of the mesentery with artery forceps on the opposite side of the cleft and then tying the bites of the forceps together; in this way the vessels are not in jeopardy. It has been suggested, and is often stated, that in the small intestine one layer of suture will suffice, but I would like to urge that it is much wiser to make at least an attempt to bury the first line to some extent—if not by a complete Lembert suture, at all events by one or two such sutures to convert the peritoneal aspect of the anastomosis into a ditch rather than a hillock.

Toilet of the Peritoneum

The toilet of the peritoneum may have to be hurried, but it must not be neglected. There is no need to endeavour to get rid of all blood, but it is much wiser to bale out masses of clot, and this is best done with the hand. The surgeon should remember that the pelvis, and to a much less extent the loin pouches, are the places into which not only blood but loose foreign bodies and debris are most likely to find their way. There are cases in which a portion of intestine has been completely separated as the result of trauma and has gravitated to the pelvis, and it is well to be on the look out for this rare but not unheard-of complication.

Much has been said about the use of a "sucker"—a horrid name for a useful instrument—but care must be taken that this is not too powerful and that damage is not done to pieces of intestine or omentum drawn into what may be its voracious mouth. Careful gentle swabbing can be very efficient. Those of us who began their apprenticeship in the antiseptic days will continue to yearn for the beautiful smooth soft marine sponges which were ideal for mopping up fluids from the peritoneum; now, alas! swabs of moist gauze, though a poor substitute, must take their place. Enterostomy should be studiously avoided, except in those circumstances when the patient will be under the continuous care of the person responsible for the original operation. In injuries I can scarcely imagine any condition in which it would be a primary indication, and it must never be looked upon as a simple and satisfactory method of temporarily short-circuiting a damaged area. If at any time it must be resorted to, then let me stress the wisdom of interposing the omentum between the parietes and the loop containing the tube. This is a modification which we owe to Charles Mayo, and it is valuable in diminishing the liability of the enterostomy's developing into a persistent fistula, and it certainly helps spontaneous closure. In the large bowel to convert a ragged wound into a temporary colostomy is good practice, and all that is necessary is either to tie in a Paul's tube, if and when available, or to stitch the edges of the torn bowel to the skin. In all circumstances the surgeon must have great respect for the omentum, and it should always be spared even if very considerably damaged. In gunshot wounds it may come under suspicion as a source of haemorrhage, but its large vessels may be safely tied without sacrificing any actual portion. The "apron" has many uses in the abdomen, and these are best emphasized by Rutherford Morison's description of the omentum as "the abdominal policeman," with this difference—that it is always there when wanted!

Haemorrhage

In damage to solid viscera one must remember that the main indication is to arrest bleeding. Pieces of the liver or spleen that are merely attached to the main organ by a narrow strand or a portion of capsule are best removed, and fissures that are not bleeding and are occupied by firm clot can be left alone. But big fissures with free bleeding must receive treatment. When reasonably accessible the edges can easily be drawn together by thick (No. 3) catgut sutures, which take a wide deep bite and which are passed at a distance of not less than half an inch from the edge of the rent to be closed. I should like to urge the great value of a strand of catgut passed parallel to the rent as a support for these sutures and as a means for preventing their cutting out. The strand is passed either as a whole or in sections with a round, straight, or curved needle as may be available, and is nothing more than a splint to support the interrupted opposing sutures which are so valuable for haemostatic purposes (Fig. 8). If suture cannot be employed and

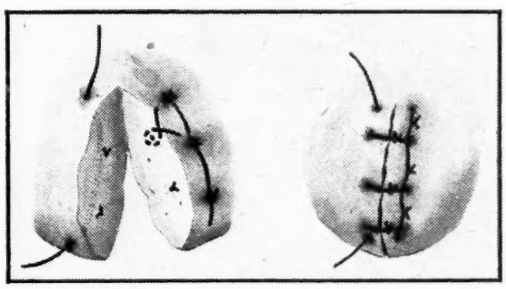

FIG. 8.—Suture of a wound of the liver over catgut supports.

gauze packing must be resorted to I would strongly advise that the packing be well dusted with boric powder. Gauze in the liver or spleen or even the kidney may have to be left *in situ* for perhaps as long as a week or even more, and is very apt to be associated with a low form of infection which delays healing and favours secondary haemorrhage. The mild antiseptic properties of boric acid are some little protection against this eventuality.

A word on the removal of the gauze may not be out of place. It should not merely be drawn out at a stated time, but should be loosened by gentle traction on the edges, and if this process can be accomplished and is not accompanied by bleeding it may be persevered with until the whole is removed. As a rule a big pack used for the control of haemorrhage can only be safely removed in two or three sittings, and it is much better to deal with it in that way than to have to attempt ineffectually to repack a wound which starts to bleed after the gauze has been taken out.

Closure of the Parietal Incision

The closure of the incision is important. Whenever possible the peritoneum should be drawn together by continuous suture. Once in apposition peritoneal edges quickly unite and thus seal off the rest of the wound, so that exudate, tags of omentum, or even loops of bowel do not escape or get forced through among the muscles or even outside. Whatever is done about the suture of the muscle and aponeurosis some general support must be

given, and that is best provided by a series of through-and-through sutures of stout silkworm-gut or silk. These must be passed through all the structures except the peritoneum; they should be inserted about every inch and a half and should enter the tissue about half an inch from the edge of the incision. They must be tied firmly to give sure support, but not as tightly as possible, or the tissues within their grasp will simply give way before the tension created. In the after-care do not worry the bowels. As soon as the patient can face it, probably about the third day, a daily dose of liquid paraffin may be useful as a lubricant. If vomiting or distension is troublesome the stomach tube, usually of the Ryle or Waggenstein type, is invaluable. For lower abdominal distension a glycerin enema, the least disturbing of all enemata, may work wonders, but should it belie the reputation I give it one can always resort to the other less comfortable but more drastic clysters.

Locating the Injury

Whatever may be said for the various incisions which are employed for opening the abdomen, when confronted with a severe emergency, there can be no doubt about the superiority of the middle-line approach. It may start above or below the umbilicus as the indication of location suggests, but unless the injury is limited to the lower small intestine it must be of ample length. The patient will not die from a big incision, but may very likely succumb if some important injury is overlooked. From half-way between the ensiform and umbilicus to just above the pubes will allow an opening wide enough for most purposes, but a further extension upwards may be most helpful in high abdominal injury. If damage to liver or spleen or colon demands a more lateral exposure the surgeon must not hesitate to make a cross-incision dividing the rectus and extending from the mid-line towards either flank. Once the peritoneal cavity is opened it is first necessary to determine the source of any considerable haemorrhage and to deal with it either finally or temporarily. Then a systematic search must be made for injury to the hollow viscera. There is usually some indication in the way of haemorrhage or bruising as to where to begin. Intestine which has been wounded, whether by firearms or otherwise, is usually more bulky and quiescent than other parts. But gunshot injuries are usually multiple, so the intestine must be examined either from some injured spot up and down or, in the absence of some hint as to the location of the injury, from below up. But, wherever begun, the search must be systematic so that it need not be repeated. The colon also must be inspected from caecum to lower sigmoid. When the large bowel is in question the nose of the surgeon often provides the first hint. In retroperitoneal tears a definite haematoma or at least blood-staining may be tell-tale. A wounded stomach is usually flaccid and a missile generally injures both walls. Discoloration or bulging of the gastro-colic or small omentum usually means injury to the posterior surface of the stomach or the pancreas.

The first injury discovered may be temporarily repaired, but only if what is done is part of what will be ultimately required. In such serious lesions, where time may be all-important, nothing must have to be done over again. A good plan is to clamp a piece of gauze over each lesion as found, using a short bowel clamp or a ring sponge handle, so that there is some guide to each area that must be subsequently repaired. It is unwise to try to decide what must be done in the way of repair until the whole extent of the damage has been determined. To make a nice resection or a pleasing suture of damaged bowel only to discover later that the aorta has been torn or the pancreas lacerated is poor recompense for the time expended. Retroperitoneal ruptures of the large bowel are among the most serious of all the injuries, and will probably demand an independent posterior incision through the muscles right down to the lesion; no mere "stab wound"—a horrid device in any circumstances—will suffice. The incision should be at least three or four inches long and must freely open up the cellular tissue. If the laceration can be easily repaired it is worth while even though the suture does break down or the bowel sloughs later. It may help to detain infection until the cellular tissue is somewhat prepared, but no great time and care must be spent in this suturing, for in any case the wound should be lightly packed with antiseptic gauze and left completely open. To suture the wound partially and to leave in a rubber tube is fallacious.

While time should not be spent in searching for foreign bodies, those that are discovered should certainly be removed, for they are potential sources of danger, though retribution may be long delayed.

DENTAL HYPOPLASIA AND CARIES AMONG THE CHILDREN OF FINNISH LAPPS

BY

HELEN MELLANBY, Ph.D.

(From the University Field Laboratories, Sheffield)

This investigation was undertaken at the suggestion of Lady Mellanby, while I was on a month's tour of Finnish Lapland in June, 1939. The visit was primarily in connexion with other scientific work. Rather unfavourable weather conditions, combined with the extremely scattered nature of the Lapp population, resulted in the number of children examined being much smaller than was originally anticipated. The results, on the other hand, are so comparatively uniform that it is reasonable to assume that these children were a representative sample.

There are about 30,000 Lapps living in the northernmost areas in Norway, Sweden, and Finland; of these some 2,000 inhabit the area of Finland north of the Arctic Circle. The Finnish Lapps are not uniform in their culture: they speak three separate languages and provide a miniature colonial problem for the Finnish Government. Those living towards the western borders (the Fell Lapps) are mostly nomadic and exist principally by reindeer husbandry; no Fell Lapps were examined during this investigation. The second group, the Skoltje Lapps, live in the Petsamo area, in the extreme north-east of Finland; this area was ceded by Russia in 1920. Some Skoltje Lapps keep reindeer, but those living near the sea seem to have lost most of their original habits and to have adopted a mode of life similar to but on a lower level than that of the poorest Finns.

The third group are the Inari Lapps; they number about 900 and form the main subject of this investigation. They live in the central part of Finnish Lapland, which is well forested, and have for many years inhabited log houses. They keep reindeer, but also practise mixed farming on a small scale; they fish in the lakes and rivers in summer. The houses are often ten miles or more apart in a country which is not easy to traverse, since there are no roads, the rivers have fairly frequent rapids, and the forest paths are often swampy and mosquito-infested during summer. In comparison winter-time travelling with reindeer is simple. Even when a house was reached after a long walk

it often happened that some of the family were away fishing and no one knew where they were or when they would return. The inhabitants of this country, where for two months in summer the sun never sets and where for part of the winter it never rises, have little "sense of time," so that much patience is required for an investigation of this kind.

Scope of the Investigation and Methods Used

Only children between the ages of 2 and 14 years were examined. Some of these were seen in small groups of five or six at village schools such as Inari or Kaamanen, while a slightly larger number were living in the orphan home at Riutula. Further north the Skoltje Lapp villages of Moscova, Poshashsijt, and Koltokongas were visited, and at these we went round the houses with the aid of an interpreter, but only seventeen children were at home. The remainder of the children, except for three or four living very near Inari, were examined during a walking and motor-boat expedition to Angeli, on the Norwegian border. I was accompanied by Fröken Wide, the hostess from our hotel, to whom I am much indebted for the help she gave me.

Each mouth was examined with an illuminated mirror and probe and the teeth were charted for hypoplasia and caries. The method used for estimating the structure of the teeth was that described by M. Mellanby (1927a, 1927b, 1934). Each tooth with enough enamel surface intact was graded for hypoplasia by rubbing its buccal surface with a fairly sharp probe. Four grades of structure were distinguished: Grade 0—no hypoplasia; Grade 1—slight hypoplasia; Grade 2; and Grade 3. Any teeth with gross hypoplasia like that figured in textbooks—that is, hypoplasia which is easily visible in the mouth to the naked eye—were entered on the charts as such to distinguish them from Grade 3. In this paper the 1, 2, and 3 grades of hypoplasia will be referred to as "M-hypoplasia," whereas the textbook or gross type will be called "G-hypoplasia."

The extent of caries* in each tooth was estimated as 0, 1, 2, or 3, depending on the size of the cavity if one was present, the criterion for size being the same as that used by M. Mellanby and her colleagues (1934, 1936, etc.) and King (1938, 1939) in similar but much larger investigations. As no radiographs were taken of the teeth some caries was undoubtedly missed in the mirror-and-probe examination. To obtain comparative hypoplasia and caries figures for the children the total hypoplasia and caries figures for each mouth were added up separately and divided by the number of fully erupted teeth. This gave the average hypoplasia figure (A.H.F.) and the average caries figure (A.C.F.).

In this paper the structure of the teeth is stressed particularly because it is not usual in field surveys to pay any attention to structure. King (1939) made the first field survey of teeth in which structure was emphasized. The present investigation, though much smaller, is the second in which this has been done. Since structure in teeth is dependent on development (M. Mellanby, 1923a, 1923b, 1930, 1937) it seems reasonable to consider it first, and to deal with caries later.

Of the Inari Lapps the fifty-three children examined probably represent nearly one-third of the total child population between 2 and 14 years. As this group of Lapps inhabit an area remote from any towns or railway communication a study of their teeth should be of some interest. I was fortunate enough, through the kindness of Dr. Kivimaki, to be able to look at the collection of Inari Lapp skulls in the anatomy museum of Helsinki. The skulls are between fifty and two hundred years old, and among them were sixteen from children of 5 to 15 years approximately. A comparison of the teeth of the modern Inari Lapp child with those of his predecessors was therefore possible. Information about the former diet of these people was collected from old travel books, while particulars of their modern diet in winter time were obtained from Mr. Michael Logan, who has spent part of several winters living in Lapp houses. I gained some information about their summer diet by eating in their houses.

* Caries 0 denotes free from caries so far as can be judged by a probe and mirror; caries 1 means a pin-point cavity, or no visible caries but the probe sticks; caries 2 represents a cavity involving up to one-third of the crown; and caries 3 denotes a cavity larger than one-third of the crown.

The Structure of Lapp Children's Teeth

From an examination of Table I it will be seen that the teeth of both Inari and Skoltje Lapp children are of very imperfect structure, some grade of M-hypoplasia being found in 75 per cent. of the deciduous teeth—that is, only 25 per cent. of the deciduous teeth of these children could be regarded as of good structure. It is probable that even this figure for the deciduous teeth is too high, because they showed a very considerable amount of attrition. In the cases in which I tried to find the cause of this attrition it would appear to be due to the habit of chewing pieces of twigs. When a deciduous tooth, such as a first or second molar, has much of its crown worn away the small remaining area of buccal surface becomes more polished, and in estimating this structure the tooth may sometimes be given a higher standard than it originally developed. A higher percentage of the permanent teeth showed some M-hypoplasia than did the deciduous, only 6.7 per cent. being of good or normal structure. In both deciduous and permanent teeth many were so carious that no hypoplasia figure could be obtained for them. For example, 104 deciduous molars out of a total of 347 were too carious, as were also forty-seven permanent molars out of a total of 195. Since it has been shown that there is a direct association between this M-hypoplasia and caries (M. Mellanby, 1923a, 1923b, 1927a, 1927b, 1929, 1930; King, 1938) it is probable that these very carious teeth included a high proportion of Grade 2 and 3 types of hypoplasia. This would also result in making the teeth as a whole appear to be of better structure than they actually were. In the large field investigation of King (1939) dealing with the structure of teeth among children in the Scottish island of Lewis the question of attrition affecting the estimation of structure did not occur, because the teeth of these children showed very little attrition.

In Table I the M-hypoplasia figures for the Inari Lapp children are worked out separately so that they may be compared with the amount of M-hypoplasia found in the skulls of their predecessors from the same district.

TABLE I.—*Structure of Teeth of Finnish Lapps: Grades of M-hypoplasia*

	Total No. of Teeth	Percentages				Average M-hypoplasia Figure
		0	1	2	3	
ALL LAPPS						
(*a*) *Deciduous teeth*:						
Simple	249	31.7	52.2	15.7	0.4	0.85
Complex ..	243	16.4	39.5	37.4	6.6	1.34
Total ..	492	24.2	45.7	26.5	3.5	1.09
(*b*) *Permanent teeth*:						
Simple	429	6.5	44.0	45.0	4.7	1.48
Complex ..	332	7.4	39.6	43.4	9.6	1.56
Total ..	761	6.7	42.1	44.7	6.7	1.51
(*c*) *All teeth* ..	1,253	14.6	43.5	35.7	5.6	1.35
INARI LAPPS						
(*a*) *Deciduous teeth*:						
Simple	216	32.4	54.0	12.9	0.4	0.81
Complex ..	221	15.4	40.2	38.5	5.8	1.35
Total ..	437	23.7	47.3	25.8	3.1	1.09
(*b*) *Permanent teeth*:						
Simple	316	8.5	48.6	39.9	3.4	1.38
Complex ..	236	9.7	40.5	39.5	10.1	1.50
Total ..	552	9.1	44.9	39.6	6.3	1.43
INARI LAPP SKULLS						
(*a*) *Deciduous teeth*:						
Complex only ..	52	82.7	17.3	0	0	0.17
(*b*) *Permanent teeth*:						
Complex only ..	51	43.1	50.9	5.9	0	0.63

Caries in Lapp Children's Teeth

As might be expected on the basis of the poor structure of the Lapp children's teeth caries is rampant. In Table II the incidence and extent of caries in three age groups of Inari Lapps and in the Skoltje Lapps will be seen. All children over 4 years old were affected by the disease, and out of the total of seventy children only three were caries-free, and

TABLE II.—*Incidence and Extent of Dental Caries in 70 Finnish Lapp Children*

Age Group (Years)		All Teeth			Deciduous Teeth			Permanent Teeth		
		No.	Percentage Carious	Average Caries Figure	No.	Percentage Carious	Average Caries Figure	No.	Percentage Carious	Average Caries Figure
Under 6 ..	Inari Lapps	208	24.0	0.39	208	24.0	0.39			0.70
6-9 ..	" "	555	54.7	1.19	313	68.3	1.57	242	37.2	0.64
10-14 ..	" "	422	41.7	0.71	57	43.9	0.92	365	41.3	
All Ages:										
2-14 ..	" "	1,185	44.7	0.89	578	50.0	1.15	607	39.7	0.684
4-14 ..	Skoltje Lapps, Petsamo Area	404	62.9	1.41	132	78.7	2.34	272	55.1	1.04
2-14 ..	Skoltje and Inari Lapps together	1,589	49.4	1.00	710	55.3	1.44	879	44.5	0.77

these were between 2 and 3 years old. Taking all the Lapp children between 2 and 14 years together, 55.3 per cent. of their deciduous teeth were carious and 44.5 per cent. of their permanent teeth were also decayed. When this result is compared with that obtained by other workers for children of a similar age in different parts of the world it will be realized that the teeth of these Lapp children are at least as carious as any others in Europe for whom figures are available.

Modern children with the least caries (excluding natives of tropical countries) are probably those Eskimos examined by Pedersen (1938) in the remote parts of East Greenland, where he found that children aged 0 to 13 years had only 2 to 4 per cent. of their deciduous teeth attacked by caries and only 1 to 1.4 per cent. of their permanent teeth affected. In contrast to this, Pedersen (1937) found that between 31 per cent. and 34 per cent. of the teeth of children attending some Danish elementary schools were carious in the age group 7–13 years. The teeth of "civilized" West Greenlanders living in Julianehaab he found to be slightly worse than those of the Danes.

According to the figures of Ainsworth and Young (1925) the percentage of carious teeth in children aged 6 to 13 years attending a number of elementary schools in England and Wales was between 26 and 55 for deciduous teeth (upper jaws only), with an average of 43 per cent. Of the total permanent teeth the percentage carious was between 8 and 16, with an average of 13 per cent.

Where children's teeth in Europe are considered good—as, for instance, in the more remote parts of the island of Lewis which were investigated by King (1939)—there are still some 14 per cent. of the teeth carious, though 28 per cent. (and in some districts up to 50 per cent.) of the children have no caries at all.

Comparison between Inari Lapp Children's Teeth and those of the Skulls

The sixteen skulls of Inari Lapp children examined in the Helsinki anatomy museum contained only a proportion of the teeth present at death, the rest having fallen out of their sockets, as so often happens with skulls buried for long periods. The deciduous teeth present were as follows: two canines, twenty-three first and thirty-eight second molars. The permanent teeth were two incisors, one canine, five premolars, thirty-nine first molars, and nine second molars. In comparing the teeth of these skulls as regards structure and caries with those of the modern Inari Lapp child only the complex teeth can be considered, since nearly all the simple teeth in the skulls had been lost. In the matter of *structure*, the teeth from the skulls, particularly the deciduous ones, were much superior to those of the Inari Lapp children to-day. As will be seen from Table I, out of a total of fifty-two deciduous molars from the skulls only nine (17.3 per cent.) showed any degree of M-hypoplasia, and then it was only one degree. In other words, forty-three out of fifty-two (82.7 per cent.) skull deciduous molars were of perfect structure. In the present-day children, on the other hand, only thirty-four deciduous molars out of 221 (15.4 per cent.) showed no hypoplasia. Again, in the complex permanent teeth the skulls showed considerable superiority of structure, twenty-two out of fifty-one (43.1 per cent.) being perfect, as compared with twenty-three out of 236 (9.7 per cent.) in the children's teeth. None of the skull teeth showed G-hypoplasia. It would seem, therefore, that in the modern Inari Lapp children the teeth are of much worse structure than those of their predecessors living between fifty and two hundred years ago.

The difference in the amount of caries in the skull teeth and the children's teeth is also very striking. Comparing the

	Deciduous Complex Teeth		Permanent Complex Teeth	
	No.	Percentage Carious	No.	Percentage Carious
Skulls ..	52	5.7	51	21.8
Children ..	300	73.3	288	74.0

deciduous teeth, the proportion of caries among the molars of the children was almost thirteen times that shown in the skulls. The difference in the permanent teeth was not so great, the children having only three and a half times the number of carious complex teeth present in the skulls.

From the evidence available in the small number of skulls it appears that not only have the teeth deteriorated in structure in the modern Lapp child but, as might be expected from previous evidence, they show a great increase in caries.

In addition to the sixteen skulls of Inari Lapp children in the museum there were more than 200 skulls from adults, most of them elderly people. The teeth in these old skulls showed so much attrition that it would not have been easy to calculate a caries figure, but it was obvious from a superficial examination that these people had died with the vast majority of their complex teeth in working order. No proper dental examination was made of any living adult Inari Lapps, but when speaking to them it was very noticeable that most of those under 35 years old had hardly a sound tooth in their heads. On the other hand some of the old Lapps whom I met on the journey to Angeli and elsewhere appeared to have most of their teeth in good condition. This suggests that the deterioration of the teeth in these Lapps is a fairly recent occurrence, probably beginning about 1900, when the Finns started to emigrate in numbers into Lapland.

Relation between Structure and Caries

1. IN THE CHILDREN'S TEETH

The high degree of association between the M type of hypoplasia and caries was first shown as long ago as 1923 by M. Mellanby, and it has been confirmed since by further work of M. Mellanby (1927a, 1927b, 1929, 1930, 1934, 1937), by the Medical Research Council report of the Dental Disease Committee (1936), by Davies (1939), and by King (1938, 1939). The first field survey recording structure in this sense and showing the association of structure and caries was made by King (1938, 1939) on the teeth of children living in the island of Lewis. There were not sufficient teeth in the present investigation to make it worth while to work out the association between caries and M-hypoplasia in each type of tooth, but the percentage of caries in normal and hypo-

plastic teeth is shown in Table III below for deciduous and permanent teeth, which have been further subdivided into simple and complex types.

TABLE III.—*Percentage of Caries in Normal and Hypoplastic Teeth of Lapp Children*

	Teeth with No Hypoplasia		Teeth with Grade 1–3 M-hypoplasia	
	No.	Percentage Carious	No.	Percentage Carious
Deciduous I. and C.	79	7.6	170	24.7
Deciduous molars ..	40	52.5	203	70.9
Permanent I. and C.	28	0	401	13.5
Permanent molars and premolars ..	24	50	308	76.3
Totals	171	22.8	1,082	43.9

It will be seen from the table that the teeth showing some degree of M-hypoplasia were much more liable to caries than were those of normal structure.

2. IN THE INARI LAPP CHILDREN'S TEETH AND THOSE OF THE SKULLS

In showing the association between surface structure and susceptibility to dental caries (Tables IV and V) in the Inari children's teeth and in the skulls only the complex types of teeth can be considered, as nearly all the simple teeth were absent from the skulls. In the deciduous molars of the skulls (Table IV) only three teeth showed any caries, and then

TABLE IV.—*Association between Surface Structure of Teeth and Susceptibility to Dental Caries. Deciduous Molars of Inari Lapp Children. (Teeth showing G-hypoplasia are omitted.)*

M-hypoplasia Grades	Caries Grades 0	1	2	3	Totals	Average Caries Figure
0	18 (41)	8 (2)	7	1	34 (43)	0.65 (0.05)
1	44 (8)	20 (1)	18	7	89 (9)	0.87 (0.11)
2	11	15	28	31	85	1.93
3	2	3	3	5	13	1.84
Totals	75 (49)	46 (3)	56	44	221 (52)	1.31 (0.06)

For the data arranged in the form of a fourfold table the coefficient of association (Q_s) between quality of structure and incidence of caries is 0.706.
The figures in parentheses are those obtained from the skulls of Inari Lapp children.
Among the children examined fifty-nine deciduous molars were too carious for a hypoplasia figure to be obtained.

it was Grade 1; only nine out of fifty-two had any degree of M-hypoplasia. The Inari children's deciduous molars were very much more hypoplastic and more carious. In the children's teeth the average caries figure for each grade of M-hypoplasia from 0 to 3 steadily increases.

In Table V the permanent molars and premolars of the

TABLE V.—*Association between Surface Structure of Teeth and Susceptibility to Dental Caries. Permanent Molars and Premolars of Inari Lapp Children. (Teeth showing G-hypoplasia are omitted.)*

M-hypoplasia Grades	Caries Grades 0	1	2	3	Totals	Average Caries Figure
0	11 (17)	10 (5)	1	1	23 (22)	0.65 (0.23)
1	29 (21)	51 (3)	16 (2)	0	96 (26)	0.86 (0.27)
2	19	31	26	17	93	1.44
3	0 (1)	4 (2)	14	6	24 (3)	2.08 (0.66)
Totals	59 (39)	96 (10)	57 (2)	24	236 (51)	1.19 (0.27)

For the data arranged in the form of a fourfold table the coefficient of association (Q_s) between quality of structure and incidence of caries is 0.686.
The figures in parentheses are those obtained from skulls of Inari Lapp children.
Among the children examined nineteen permanent molars were too carious for a hypoplasia figure to be obtained.

children are compared with those teeth from the skulls with regard to structure and caries. There is not so striking a difference in this case between the modern Lapps and their predecessors: this might be due in part to the fact that the skulls may have been from unhealthy children who for some years before their early death had been in a condition of ill-health which may have affected their tooth structure.

Statistical analysis of the data arranged in the form of a 2×2 contingency table gives values of χ^2 and P which indicate that the association between susceptibility to caries and quality of structure is definitely significant. The degree of association is of a fairly high order, as is seen by the coefficients of association (Q_s) of not less than 0.6. I am grateful to Dr. Matthew Young and Miss I. Allen for these and other statistical analyses of the data.

Discussion of the Results, with Special Reference to Diet

It is evident from the results that the teeth of the modern Finnish Lapp child are of poor structure as judged by grading their surface texture for M-hypoplasia. When the structure of the children's teeth from one part of Finnish Lapland is compared with that of their predecessors from the same district who lived some fifty to two hundred years ago it is seen that the teeth used to have a much better structure. Now the structure of teeth is dependent to a large extent on diet, as was originally shown by M. Mellanby (1918–1930). Since the general mode of living of the Inari Lapps is thought to have changed less than that of other Lapp communities with the advance of civilization, it seemed worth while to find out if much alteration had taken place in the type of food eaten. Only a general idea of the modern diet in winter and summer was obtained, but as the diet is restricted in the kinds of food consumed it is obvious that such an examination gives a far more accurate impression than would be obtained by using the same method on the inhabitants of a "civilized" town.

Particulars of the old Lapp diet were found in two travel books—one by Scheffer, published in 1674, and one by Acerbi, published in 1802. It is probable that the diet of the Inari Lapps remained relatively little changed until the migration northwards of the Finns took place about the beginning of the present century. The skulls in Helsinki are assumed to belong to a period when the types of food eaten were either exactly the same as those described by Acerbi or only slightly modified.

In the original Lapp diet reindeer and reindeer products were the staple food. Reindeer flesh was eaten raw or stewed, the entrails and bone marrow being also used. A small amount of cheese was made from reindeer milk, which is said to have four times the calcium content of cow's milk. The flesh of bears was eaten when this was available, as was much river and sea fish, including salmon. Some of the fish was dried and then pounded up into a kind of flour. A substitute for salt was made out of pine bark, and a large amount of wild fruit was taken raw or made into sauces. Scheffer comments on the complete absence of bread, while Acerbi says that very little bread was eaten, and what there was took the form of flat rye cakes. He states that fish livers were a great delicacy; a quotation from his book reads: "The liver of this [cod] and other fish, bruised and mixed with cranberries, is considered a very savoury dish, and this . . . is eaten without bread."

From these sources it appears that the original Lapp diet, like that of the "uncivilized" Eskimos, was almost entirely carnivorous. In both cases the possible low calcium intake, especially in relation to phosphorus, was made good by the habit of chewing bones.

The modern substitute which has succeeded this diet shows some important differences. The chief additions are cheap margarine, oatmeal, coffee, sugar, and potatoes. Cereals appear to be consumed in large quantities during the winter, as they can then be brought from long distances

by reindeer-sledge and they provide an easily stored non-perishable type of food. Oatmeal mixed with rye flour and water and cooked until it forms a thick porridge is a popular dish. A great deal of coffee is drunk by adults and much cane sugar is taken with it, so the children no doubt get some opportunity for obtaining sugar. They will readily eat sugary sweets when offered them, though I saw none in the houses; chocolate they refuse. Compared with children in this country their sugar consumption must be much lower, owing to lack of pocket money and shops in which to buy sweets.

Much reindeer meat is still eaten stewed or raw, also a good deal of lake fish and dried cod; the latter has often been dried for a long time and may therefore have little vitamin value. Practically all the salmon (with its high vitamin content) which they catch is sold to hotels and tourists, whereas there used to be no market for it. Many Lapps grow potatoes, which they cook fried in margarine, and the Finnish Government is now doing all it can to improve the diet of the Lapps by encouraging them to keep cows. This is fairly easy in summer, but difficulties are apt to arise in looking after the animals throughout the long Arctic winter of seven months. For this reason the animals are often killed when the snow begins to come. When consumed, cow's milk is seldom taken fresh but is allowed to go sour and solidify. Unlike the Finns, who use all this sour milk, the Lapps tend to eat only the cream off the top, thereby wasting valuable protein and salts. Very little fresh fruit is gathered nowadays.

It would seem from the foregoing account that there has been a great increase in the use of cereals, particularly in winter. This must to a large extent replace the carnivorous part of the food. The fat-soluble vitamin and calcium content is probably low. Their former diet was said by Acerbi to be extremely oily, but to-day most of the fat used in cooking and on their hard rye bread is cheap margarine. If allowance is made for the anti-calcifying effect of a high cereal content of the diet (E. Mellanby), in the presence of little fat-soluble vitamins and calcium, it seems possible to account for the deterioration in tooth structure that appears to have taken place in the modern Inari Lapp child as compared with its predecessors. This defective tooth structure has been shown to be correlated with a greater liability of the teeth to decay, so that the considerable changes in the Lapps' diet may be largely responsible for the very carious condition of the children's teeth.

Summary

The teeth of seventy Finnish Lapp children between 2 and 14 years of age were examined. Fifty-three of these children were Inari Lapps and seventeen were Skoltje Lapps.

The teeth of these children were on the whole badly formed as judged by the probe diagnosis of M. Mellanby. Some grade of M-hypoplasia was present in 75.8 per cent. of the deciduous teeth and in 93.3 per cent. of the permanent teeth. G-hypoplasia was found in 3.9 per cent. of the permanent teeth, but none was found in the deciduous teeth.

Much less M-hypoplasia was found in teeth from children's skulls from the Inari district which had been buried for between fifty and two hundred years. The skulls showed no gross or G-hypoplasia.

Caries was found to be very common in the modern Lapp child but much less prevalent in the Inari Lapp skulls. In the children 55.3 per cent. of the deciduous and 44.5 per cent. of the permanent teeth were decayed. No child over 4 years of age was caries-free.

A brief comparison is made between the former Lapp diet and its modern counterpart. Changes in the diet are thought to be partly responsible for the deterioration in tooth structure, and as M-hypoplasia has been shown to be correlated with a greater liability to caries this would account, at least in part, for the great increase in decay among the children's teeth as compared with those of their predecessors.

References

Acerbi, J. (1802). *Travels through Sweden, Finland, and Lapland in 1798 and 1799*, London.
Ainsworth, N. S., and Young, M. (1925). Med. Res. Cncl., Sp. Rep. Ser., No. 97, London.
Davies, J. H. (1939). *Brit. dent. J.*, **67**, 66.
King, J. D. (1938). *Lancet*, **2**, 109.
—— (1939). Med. Res. Cncl., Sp. Rep. Ser., London (in press).
Mellanby, M. (1918). *Lancet*, **2**, 767.
—— (1923a). *Proc. roy. Soc. Med.* (Odont. Sect.), **16**, 74.
—— (1923b). *Brit. dent. J.*, **44**, 1.
—— (1927a). Ibid., **48**, 737.
—— (1927b). Ibid., **48**, 1481.
—— 1929). Med. Res. Cncl., Sp. Rep. Ser., No. 140, London.
—— (1930). Ibid., No. 153.
—— (1934). Ibid., No. 191.
—— (1936). Ibid., No. 211.
—— (1937). *Brit. dent. J.*, **62**, 241.
Pedersen, P. O. (1937). *Tandlbl.*, **5**, 255.
—— (1938). *Dent. Rec.*, **58**, 191.
Scheffer, J. (1674). *The History of Lapland*, Oxford.

AN ABDUCTION SPLINT USED IN WAR SURGERY IN CHINA

BY

KEITH H. GILLISON, M.B., Ch.B., F.R.C.S.Ed.
Union Hospital, Hankow, China

The outbreak of war in China in 1937 created a great demand for splints and appliances for dealing with gunshot and bomb injuries. One such appliance proved particularly satisfactory, and for this reason is brought to the attention of those preparing for war service in the West.

Description of Splint

The splint (Fig. 1) is similar in the principles of its construction to the abduction frame made out of Cramer's wire, used so extensively by Böhler in Vienna. The material in this case, however, is not Cramer's wire but thin sheet metal. To give sufficient rigidity the edges of

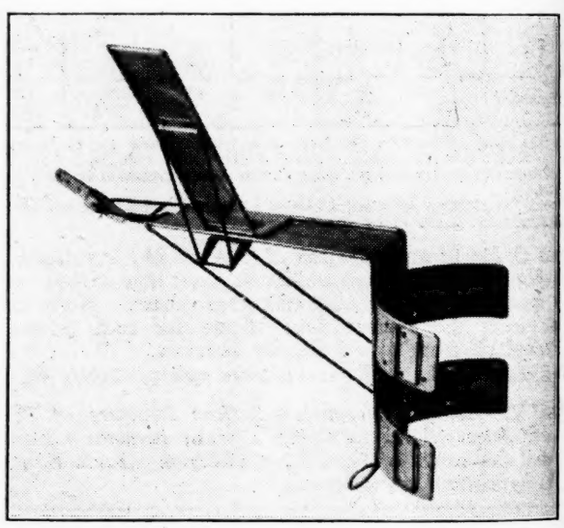

FIG. 1.—Showing the construction of the abduction splint.

the metal are turned round or "beaded" to include stout wire. The splint consists of four metal strips as follows:

1. A main strip or "body," bent at a right-angle to fit against the chest and under the upper arm. The right-angle in this strip is maintained not only in its "beaded" edges but by means of two wire struts.

2 and 3. Two narrower strips or "chest bands," riveted at right angles to the first piece, which can be bent to fit snugly to any size or shape of chest. Each of these strips carries near its end a hinged wire loop.

4. A forearm support. This is fixed to the body of the splint by a bolt and wing nut. The latter is adjustable in a

slot to suit any length of upper arm. The forearm piece is also provided with a strengthening wire strut. By loosening the wing nut and pulling out this strut the forearm piece may be quickly adapted for either a right or a left arm. Following the suggestion of Mr. Watson Jones of Liverpool, the forearm piece is bent up to correct internal rotation at the shoulder and give a true "mid-position."

At the lower end of the body of the splint is a wide semicircular wire loop which is of great value for the secure application of the splint (see below). At the upper outer angle a lever and spring provide for extension on the upper arm if required.

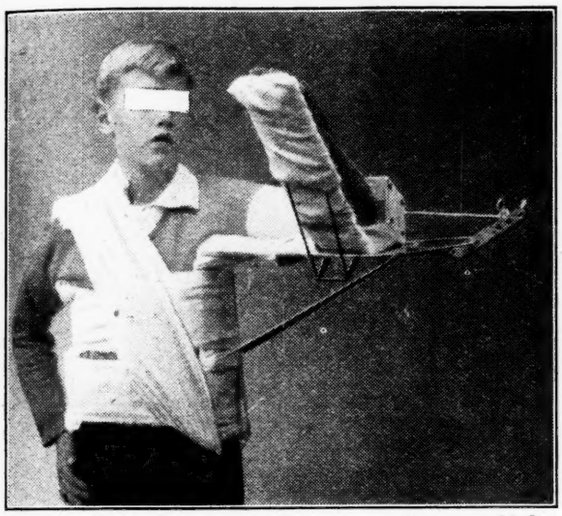

FIG. 2.—The splint in use. The same appliance would fit a larger adult.

In China the splint was made originally of No. 30 gauge galvanized iron. In England we have used No. 22 gauge sheet aluminium. The latter has the advantage that it does not rust and is more translucent to *x* rays. The former is cheaper and can be soldered. Either transmits *x* rays sufficiently to show the position of fragments in a case of fracture. There is little to choose between the two materials as to weight. The wire used should not be too soft, and if not of stainless steel should be galvanized or coppered. The thickness we have used is about three-sixteenths of an inch.

Method of Application (Fig. 2)

The splint is well padded, particular attention being paid to the lower end of the "body" near the wire loop. The following are then prepared: three roller bandages 6 in. by 5 or 6 yards; one stitched pad approximately 8 by 6 by 1 in.; one stitched pad approximately 12 by 8 by 1 in.; a few safety-pins, a needle and thread. The larger pad is placed against the side of the chest up to the axilla on the side opposite to that requiring the splint and is held there either by an assistant or by means of adhesive plaster. The injured arm being abducted to a right-angle, an assistant presses the splint up into the axilla. In doing this it should be placed about 40 degrees in front of the coronal plane to secure a true "mid-position" (Fig. 3). The tail of one of the 6-inch bandages is now threaded through first one and then the other of the loops on one of the metal chest bands. By pulling on the tail and roll of the bandage the splint is brought firmly up against the patient's chest. The tail of the bandage is then turned back to the first loop it passed through and fixed by running the bandage over it in repeated transverse turns round the chest till exhausted, when it is fastened by a safety-pin. Another transverse bandage is applied to the second chest band in exactly the same way.

The third 6-inch bandage is used in the following manner, and on it depends a great deal of the success of the splint. The smaller stitched pad is placed on the sound shoulder and should extend from the tip of the shoulder well up the side of the root of the neck. An assistant makes sure that the splint is well braced up into the axilla, and the tail of the third bandage is knotted to the semicircular wire loop at the lower end of the body of the splint. The roller is then carried obliquely up across the front of the chest over the shoulder-pad and down across the back to the starting-point. Here the whole roll of the bandage is passed through the semicircular wire loop and the bandage now retraces its steps up over the shoulder to where it started. It then passes through the loop again, back over the shoulder to and fro till exhausted, when it is either knotted to the wire loop or fixed with a safety-pin. In carrying the various turns over the shoulder one should not pass always over the same point, but make the turns spread out fanwise like a divergent spica, thus distributing pressure; if desired the bandage may be taken over both shoulders.

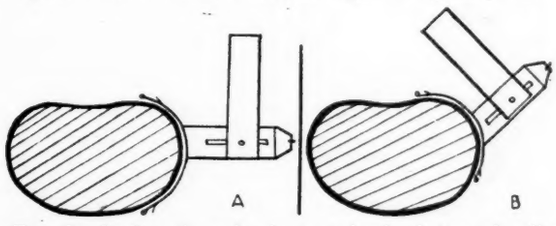

FIG. 3.—Section through chest at level of top of splint. A: Wrong method of application; anterior muscles unduly stretched. B: Right method, about 40 degrees in front of coronal plane.

If the splint is to be worn for any length of time it is wise to stitch the various turns of the bandage to the edges of the two pads and to each other at the points where they cross. This prevents the pads slipping out of place and adds to the comfort and security. If extension is desired it is applied by means of skin traction, a cord being taken from a square spreader and fastened to a hole in the extension lever. Any desired degree of pull is obtained by varying the tightness of the cord. The arm and forearm are usually bandaged to the splint at night, but may often be left unbandaged in the daytime, especially in ambulatory cases, so that active movements may be carried out.

Advantages of Splint

The following advantages are claimed: efficiency with maintenance of abduction in the true "mid-position" of arm and forearm; comfort, due to lightness of splint and especially to the method of application; adaptability for right or left arm use and all sizes of patient. In addition there are certain advantages with regard to radiography, cleanliness, and low cost—less than 10s. if mass-produced. These advantages render the indications for the use of an abduction splint considerably more numerous than was formerly supposed, though the appliance is principally of value in fractures of the humerus, especially compound ones.

In China, where the majority of gunshot wounds were grossly infected before reaching us, we made considerable use of the Winnett Orr type of treatment. In a hot humid climate these splints were found to compare favourably with plaster-of-Paris for immobilizing the

upper limb following saucerization and vaselin packing, and out of about 200 surgical cases it was not uncommon to have twenty or thirty patients going about wearing them. The Chinese wounded soldiers got very attached to them, and called them their anti-aircraft guns.

Messrs. J. Critchley and Sons of 18, Great George Street, Liverpool, have kindly offered to supply the splint to anyone interested, and they have also made plans for an improved model, one of the chief features of which is that it is collapsible.

HYPOVITAMINOSIS-C AND PULMONARY TUBERCULOSIS

BY

G. S. ERWIN, M.B., Ch.B.
Medical Superintendent, Liverpool Sanatorium, Frodsham

R. WRIGHT, M.B., Ch.B.

AND

C. J. DOHERTY, M.B., B.Ch., B.A.O.
Medical Officers in the Sanatorium

The state of vitamin C unsaturation existing in pulmonary tuberculosis (Heise and Martin, 1936; Hasselbach, 1936; Abbasy, Harris, and Ellman, 1937; Hurford, 1938) has been found so gross as to suggest some specific relationship. Encouraged by this, Petter (1937), Albrecht (1938), Hurford (1938), and Bakhsh and Rabbani (1939) have tried the effect of saturating tuberculous patients with vitamin C for variable periods in the hope of obtaining benefit. The improvement in weight, sedimentation rate, and temperature recorded by Albrecht and the regression of infiltration observed by Weber (1938) were apparently specific, and stimulated us to verify, if possible, these happy results.

Method of effecting Saturation, and Findings

Employing macroscopic urinalysis based on the method of Harris, Ray, and Ward (1933), we found during the winter months that trouble was caused by the freezing of glacial acetic acid, and were therefore obliged to substitute 33 per cent (*B.P.* strength) acetic acid and modify the calculation accordingly. Apart from this one alteration, our technique did not materially differ from that in general use, which involves the employment of dichlorophenol-indophenol as an indicator and necessitates rapid titration soon after micturition.

The total daily urinary ascorbic acid excretion was estimated for three consecutive days, the average value for all patients being 13 mg. daily, with extremes of 7.4 and 25 mg. While the degree of hypovitaminosis was roughly proportionate to the severity of the infection, occasional inconsistent results rendered it unreliable as an index of severity. In order to remedy the unsaturation we at first administered 500 mg. of ascorbic acid by mouth daily to each patient until an excretion level of 250 mg. was obtained, but it sometimes took as long as a fortnight to achieve this object, most cases requiring a total of 6 to 7 grammes. By experiment we found that it was possible to administer a large preliminary dose of 5 or 6 grammes, followed by 1/2 or 1 gramme doses until at least 250 mg. was excreted, and the majority of our patients were saturated by this rapid method. Harris, Ray, and Ward (1933) give a normal excretion rate of about 30 mg. daily, and, accepting this standard, we maintained the excretion rate, after saturating, at a level of 40 mg. or more in order to exclude the possibility of partial saturation. Every fortnight the total daily output of each patient was checked, and the maintenance dose altered if necessary. Between 100 and 200 mg. daily sufficed in even the more extreme cases, but throughout the test period patients avoided fruits containing excessive amounts of ascorbic acid, oranges only being allowed at the rate of 35 mg. per orange in substitution for part of the maintenance dose. Saturation was maintained for six months in the surviving cases.

Selection of Cases

The average case of pulmonary tuberculosis undergoing sanatorium treatment is so apt to become apyrexial, to gain weight, and to improve by all the usual criteria that such a case would be unsuitable for testing this new remedy, for at least two imponderable factors—rest and vitamin C saturation—could be held responsible for any improvement noted. Hence we selected our cases from two more suitable groups: (*a*) acute or bronchopneumonic cases with marked pyrexia, unlikely to improve on any known form of treatment; and (*b*) "bad chronics"—that is, cases with fairly extensive disease which, after a reasonable period of observation, were found to be making no progress or were even slowly retrogressing. Twenty-four cases in all were treated, seven being acute and seventeen "bad chronics."

Results of Treatment

In analysing the results we have excluded appetite and cough as indications of improvement, it being clear that these subjective symptoms are too vague and too susceptible to the suggestion of benefit from a new and special treatment. With the exception of the sedimentation rate, which is often in direct ratio to the degree of toxaemia, we have excluded blood changes as criteria of improvement. An improvement in coexisting anaemia might well follow the administration of ascorbic acid, but though the general well-being would thereby be increased the improvement would be unrelated to the pulmonary condition and therefore confusing. All of our cases were bacilliferous at the beginning of treatment and remained so throughout. Eleven patients died during the investigation, hence the inclusion in the table of only thirteen cases, of which one was acute and the remainder were "bad chronics."

Table showing Results of Treatment

	Improved	Unchanged	Worse
Fever	2	7	4
Pulse	2	7	4
Weight	3	1	9
Sputum quantity	—	5	8
Sedimentation rate	4	1	8
X-ray appearance	1	0	12

It will be seen that on all counts, especially radiologically, the general tendency is to stability or deterioration. Of the original twenty-four cases only one was considered to have shown a net improvement at the end of six months' treatment. The uniqueness of this result forbids the conclusion that it was due to the treatment.

Complications.—Several of the patients were suffering from laryngitis or enteritis, but in none of the survivors was any improvement in these complications noted. One patient was suffering from amyloid disease, which was not materially benefited, while another developed meningitis and died, in spite of adequate saturation.

Haemoptysis.—One fully saturated patient suffered fatal haemoptysis, while another died of bronchopneumonic spread a few weeks after a severe haemorrhage which

occurred during treatment. In another instance (not included in the analysis) a pneumothorax patient suffering from repeated small haemoptyses was rapidly saturated, but without effect. Haemorrhage ceased spontaneously a fortnight later, the adhesions were cauterized, and there has been no recurrence of this complication.

Conclusions

Ascorbic acid is of no value in the treatment of pulmonary tuberculosis and its complications, including haemoptysis, for which most benefit might be expected. Saturation with the vitamin neither contributes to recovery nor retards retrogression.

As hypovitaminosis-C is encountered in many infections the state found in this disease must be assumed to be the result of toxaemia, and is therefore non-specific.

REFERENCES

Abbasy, M. A., Harris, L. J., and Ellman, P. (1937). *Lancet*, **2**, 181.
Albrecht, E. (1938). *Med. Klinik*, **34**, 972.
Bakhsh, I., and Rabbani, M. (1939). *Indian med. Gaz.*, **74**, 274.
Harris, L. J., Ray, S. N., and Ward, A. (1933). *Biochem. J.*, **27**, 2011.
Hasselbach, F. (1936). *Z. Tuberk.*, **75**, 336.
Heise, F. H., and Martin, G. J. (1936). *Proc. Soc. exp. Biol., N.Y.*, **36**, 642.
Hurford, J. V. (1938). *Lancet*, **1**, 498.
Petter, C. K. (1937). *J. Lancet*, **57**, 221.
Weber, H. (1938). *Wien. klin. Wschr.*, **51**, 1191.

THE DIAGNOSIS OF JOINT INJURIES

BY

J. C. FLOOD, B.A., M.D., M.Ch.

Visiting Surgeon, Jervis Street Hospital, Dublin

The diagnosis of injuries to joints can be greatly simplified if a few simple rules, based on an understanding of the potential dysfunction caused by trauma, are clearly borne in mind and their application to the physical examination of the injured joint mastered.

Physical Signs

Every injured joint presents well-defined physical signs which point directly to the site and often to the nature of the injury. Injuries of joints fall into two classes—those which involve the interior of the joint and synovial and articular surfaces, and those which involve the ligaments and/or tendons immediately related. In some cases both classes of injury are present independently, while in others they may be complementary: for example, a sprain of the internal lateral ligament is, I am convinced, a condition precedent to displacement of the medial meniscus of the knee-joint. Injuries of the ligaments alone, without injury of the internal joint surfaces, are much commoner than injuries affecting the latter without ligamentous injury. In my opinion, based on an experience of several thousand cases over a period of nine years, there is no such entity as a simple traumatic synovial effusion, it being almost impossible, mechanically speaking, to injure the synovial lining of a joint so long as the fibrous capsule with its ligaments and the articular surfaces remain intact. Careful examination will invariably disclose the extrasynovial injury, and restoration of full function depends upon that diagnosis being made and the injury to the ligamentous structures treated.

Inspection should precede every other examination of an injured joint, and any deviations from normal outline, the presence of swelling and/or discoloration, and the position in which the joint is held should be noted. Very often considerable information will be afforded by this simple procedure, and data such as the inverted-horse-shoe-shaped swelling around the patella in large effusions of the knee-joint will be obtained.

Determining Class of Injury

The next step is to determine which of the two classes of injury already mentioned is present, or whether the injuries affect both the internal joint surfaces and some or all of the extra-articular ligaments. To this end the passive and active movements of the joint must be studied and the findings assessed in the light of the following two rules, based on the teaching of the late Sir Robert Jones:

Rule I.—When disease or injury involves the interior joint surfaces, synovial or articular, all the movements (passive and active) of the affected joint are limited.

Rule II.—If any single movement (passive or active) normal to a particular joint is completely free the disease or injury present does not involve the interior joint surfaces.

Injury to Ligaments

Whether the injury has been found to involve the interior of the joint or not it next becomes necessary to examine the joint for injury to the ligaments related to it. In order to perform this part of the examination accurately and with the minimum of discomfort to the patient it is necessary first to have a clear conception of the anatomical position of the ligaments in question and to examine each one systematically. Bearing in mind that a sprain may be properly defined as "a rupture of some or all of the fibres of a ligament or tendon," I have come to the conclusion that before it can be diagnosed with certainty two criteria must be satisfied: first, there must be pain referred to the site of injury when the injured ligament is put on the stretch; and, secondly, tenderness on pressure at the site of injury must be elicited, the ligament being relaxed. The following rules for examination must therefore be observed:

Rule III.—Without touching the suspected ligament, manipulate the limb so that the ligament will be stretched; if it is torn the patient will now refer pain to the site of injury.

Rule IV.—Without touching the suspected ligament manipulate the limb so that the ligament will be relaxed; now palpate systematically along the course of the ligament. If it is torn the patient will complain of tenderness—that is, pain on pressure—localized to the site of the injury. If the examiner is experienced he will also be able to feel the effusion present at the site of injury.

If these two rules yield positive findings, and only if *both* are positive, a diagnosis of a tear of the ligament examined can be made. The examination should be conducted in the above order because if tenderness has been elicited over the ligament the patient is likely to refer pain to that area during the subsequent manipulation. This order of examination, carried out in the manner described, is useful in the detection of malingering, unless the patient has a considerable amount of anatomical knowledge.

Indications of Fracture

It now remains to palpate in a careful systematic manner the bony prominences related to the joint, seeking points or lines of localized tenderness indicative of fracture according to the following rule:

Rule V.—With the joint in the position of ease, palpate the subcutaneous bony surfaces and outlines around the joint systematically: a strictly localized area of marked tenderness indicates a likely line of fracture; if this be present an experienced examiner will be able to feel the actual line of separation.

It is advisable always to use the same fingers for palpation so as to develop their sense of touch; it is surprising to what a degree this can be increased. It is of course equally important to lay the pulp of the palpating finger or fingers almost flat on the surface to be examined and to impart a slight rotatory or rolling movement to the fingers at the moment of making pressure.

Rule VI.—Radiograph the joint in two planes—antero-posterior and lateral.

There are three reasons for taking radiographs: to confirm the clinical diagnosis; to obviate the possibility of missing a bony injury, or to determine its exact extent; and because the courts tend to regard the absence of *x*-ray examination in cases of suspected bony injury as indicative of negligence on the part of the medical attendant. If there is a large effusion into the joint it may be aspirated to facilitate the clinical examination.

Removal of Extravasation and Oedema

If there is a very considerable amount of extravasation and oedema in the subcutaneous tissues around the joint this may interfere with the examination, especially palpation. It may be removed by firm vibratory massage if the part is not too tender, or a pressure bandage may be applied for twelve or twenty-four hours, or even longer. It is important to remember that an improperly applied pressure bandage may do damage. To avoid this possibility it should be put on as follows: the affected joint should be wrapped in several thick layers of soft wool and then bandaged from below upwards. So long as plenty of wool is used one cannot bandage too tightly, as Sir Robert Jones used to point out. After a few hours, as the swelling diminishes the bandage becomes loose; if then it is wished to decrease the swelling further another light bandage can be applied *over* the first one without interfering with it. There is nothing to prevent a radiograph being taken with this bandage on. While this pressure bandage may be very useful as a preliminary to examination and treatment, there is less and less need to employ it as one's clinical experience of these injuries increases.

Summary

Six simple rules for conducting the general examination of injured joints are described. Acknowledgment is made to the teachings of the late Sir Robert Jones.

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on April 10, with Mr. V. Warren Low, president, in the chair. The deaths of three members were reported. One widow had died. She came on the funds in 1924 and had received £1,200 in grants. Her late husband had paid £52 10s. in subscriptions. Applications for relief were received from two widows of members: one, aged 70, was voted a yearly grant of £50 from the ordinary funds and one of £25 from the Brickwell Fund; the other, who was under 65 years of age, was voted a yearly grant of £50 from the ordinary funds and one of £10 from the Brickwell Fund. A special grant of £26 5s. was voted to a widow to enable her daughter to continue her medical studies. Membership of the society is open to any registered medical practitioner who at the time of his election, which is by ballot, is residing within a twenty-mile radius of Charing Cross. Only the widows and orphans of deceased members are eligible for relief. Full particulars of the society may be obtained from the secretary at 11, Chandos Street, Cavendish Square, W.1. The annual general meeting will be held on May 15.

Clinical Memoranda

Congenital Acholuric Jaundice in an Infant and Mother

Acholuric jaundice is sufficiently rare in infancy to make the following case worth recording.

CASE REPORT

A doctor's child aged 14 months came under observation in December, 1939. The parents stated that he had had a pronounced jaundice affecting the whole body and conjunctivae for the past four months—that is, since the age of 10 months. Previous to this he had been healthy and had progressed well in every way. Since the jaundice appeared he had become flabby, took food badly, and had caught several colds, with bronchitis. The jaundice had persisted, though it varied in intensity from time to time during the last four months.

When seen he was in poor health, was fretful, and took little food, and the skin was of a lemon-yellow colour. The spleen was enlarged to three fingerbreadths below the costal margin. The urine and faeces were dark and contained urobilin. He was markedly anaemic, though he had had iron continuously for three months. The blood count showed: red cells, 2,523,000 per c.mm.; leucocytes, 9,200 per c.mm.; haemoglobin, 34 per cent.; and colour index, 0.7. There was considerable anisocytosis and poikilocytosis. Blood platelets were numerous. The red cell fragility was increased, haemolysis occurring at 0.55 per cent. and being complete in 0.5 per cent. The blood belonged to Group A (II).

The child was admitted to the Royal Manchester Children's Hospital on December 6, 1939, and after ten days his general condition had improved a great deal; he began to take food better and was more contented. Large doses of ferrous sulphate were given and the blood condition improved. During this time he had an intermittent rise of temperature.

At the end of a fortnight he was so much better that it was decided to operate. Splenectomy was performed by Mr. Gow, the spleen being easily delivered and practically no blood was lost. The spleen weighed 3 oz. and was hard and cyanotic. Two small gall-stones were palpated in the gall-bladder. Recovery from the operation was rapid; no anxiety for the baby was felt, and no blood transfusion was given. Ten days later the jaundice had completely disappeared and the red cells had increased to 3,552,000 per c.mm. and the haemoglobin to 70 per cent. The red cell fragility had become normal; haemolysis began at 0.45 per cent. and was complete in 0.35 per cent. The infant continued to improve in every way, and he was discharged from hospital on January 6, 1940, after a stay of one month. When seen six weeks later he was a normal healthy baby; there was no sign of jaundice, and the blood count and fragility were normal.

MOTHER'S HISTORY

An interesting feature of this case is the history of the mother. I am indebted to Mr. P. R. Wrigley, surgeon to Manchester Royal Infirmary, for the notes on her case.

She was admitted to hospital in 1924 at the age of 16 years. She had had jaundice of varying intensity since the age of 3, together with pains in the epigastrium and attacks of vomiting. The spleen was enlarged, and she had a secondary anaemia. The fragility of the red blood cells is unfortunately not recorded on the notes. The spleen, weighing 13½ oz., was removed without difficulty. The gall-bladder, which was thickened and contained numerous stones, was also removed. The jaundice disappeared in fourteen days after operation and has not returned since, and the general health has been good. The fragility of the mother's red blood cells was tested while the baby was in hospital, some sixteen years after operation, and showed a decrease; haemolysis began at 0.4 per cent. and was complete in 0.3 per cent.

My thanks are due to Dr. Annie Somerford for the blood investigations.

HUGH T. ASHBY, M.D., F.R.C.P.
Physician to the Royal Manchester Children's Hospital.

Reviews

THE BACKGROUND OF STRUCTURE AND FUNCTION

Chordate Anatomy. By Herbert V. Neal and Herbert W. Rand. (Pp. 467; 378 figures. 16s. net.) London: H. K. Lewis and Co. 1939.

Chordate Anatomy, by Professors H. V. Neal and H. W. Rand, is a book which has been written to meet the needs of students in semester courses of comparative anatomy in the universities of the U.S.A., and is an abbreviation, with some modification and additions, of the *Comparative Anatomy* written by the same authors in 1936. Its scope corresponds in many ways to that of the courses in biology of our own universities, and it thus serves as an introduction to the more detailed study of the courses for advanced students of zoology and, in the case of medical students, a preliminary preparation for the courses in histology and human embryology. The idea which underlies and has guided the authors in the conception of the book is a historical sketch which will illustrate the general bearing which the theory of evolution has upon our interpretation of the structure and functions of the human body. The compass of the book is a wide one and embraces an elementary description of reproduction, histology, the various systems of the body, the endocrine organs, with a somewhat more detailed account of the nervous system and sense organs, a brief allusion to the ancestry of vertebrates, and a glossary. The latter consists of short definitions of terms used in the text, but lacks any reference to the linguistic derivation of these terms, and does not explain or include the meaning of names of animals and classes of animals mentioned. Further, no references are given to the standard works on zoology, palaeontology, histology, and embryology, a short notice of which is so desirable in elementary works of this kind.

The book as a whole is an excellent survey of a very large field of knowledge, and, like its predecessor, is sure of a popular reception.

SKIN TUMOURS

Tumors of the Skin: Benign and Malignant. By Joseph Jordan Eller, M.D. (Pp. 608; illustrated with 403 engravings. 45s. net.) London: Henry Kimpton. 1939.

Curiously enough we do not recall ever before meeting with a treatise exclusively devoted to the consideration of tumours of the skin. In writing the volume before us Dr. Eller has found, if not an unexplored field, at least an unappropriated title. Tumours of the skin here include not only the many and various forms of new growth properly so called—innocent, malignant, and congenital—but also most of the tumour-like manifestations of dermatological pathology such as mycosis fungoides, various granulomata, and the infiltrations of the cutis which arise in connexion with certain systemic diseases—for example, the leukaemias. On the other hand, similar manifestations associated with tubercle and leprosy are ignored. In fact the limitations observed are a little arbitrary. But the author has produced a very interesting and readable book, and there is plenty of evidence in it to justify his claim that he has been studying neoplasms of the skin for over twenty years.

The subject is adequately dealt with from every aspect, by no means least from the therapeutic. It appears that Dr. Eller is much more surgically minded than most dermatologists, and a large section is devoted to surgical procedure. The successful treatment of many skin tumours often presents difficult problems in plastic surgery, and the various methods of solving them are fully discussed. The photographs of patients "before" and "after" show what success has rewarded his efforts. Radiological methods of treatment are also discussed in full practical detail, with tables giving particulars of dosage and screening in different classes of cases. We notice that in the paragraph dealing with the treatment of plantar warts it is stated that these may be excised surgically but that care must be taken to leave a pad of fat at the base in order to avoid the formation of a sensitive scar. The great point in the removal of these troublesome little growths is to curette them out without penetrating far enough to reach the subcutaneous tissue at all. This, however, is but a small point to cavil at. Dr. Eller has produced a work of considerable value on an important section of dermatology, and it should be read with much interest by all practitioners of dermatology; it also deserves attention from plastic surgeons. A word of praise must finally be given to the fullness of the references grouped at the end of each chapter. The book is copiously illustrated by photographs and diagrams which are admirably designed to point the moral of the pages where they are to be found.

THE ART OF NURSING

A General Textbook of Nursing. A Comprehensive Guide. By Evelyn C. Pearce, S.R.M., C.B.E., C.S.M.M.G. Third edition. (Pp. 898; 182 illustrations. 15s. net.) London: Faber and Faber. 1939.

Textbook of the Principles and Practice of Nursing. By Bertha Harmer, R.N., A.M., and Virginia Henderson, R.N., A.M. (Pp. 1,048; illustrated. 15s. net.) New York: The Macmillan Company. 1939.

Nursing in Sickness and in Health. The Social Aspects of Nursing. By Harriet Frost, R.N. (Pp. 216; 7 figures. 10s. net.) New York: The Macmillan Company. 1939.

Nursing Mental Diseases. By Harriet Bailey, R.N. (Pp. 264. 12s. 6d. net.) New York: The Macmillan Company. 1939.

Miss Pearce's book first appeared in 1937 in response to a wide demand, which it generously fulfilled. It is in a way a symbol of the recent reawakening of interest in the profession of nursing, and of the growing movement to improve the nurse's status and capacity. It was widely acclaimed as a practical and complete textbook, and its popularity is shown by the publication of a third edition after only two years. It is intended to give the student the introduction to nursing she needs on entering hospital, to serve her as a book of reference as she passes from one department to another, and to give her the information she needs to pass the hospital and State examinations. Every general aspect of nursing is dealt with, and there are useful special chapters on such branches as neurosurgical cases, cancer, and the nursing of the dying. The selected examination questions will be valuable to candidates. Miss Pearce has not only very wide practical experience but also much humanity, which constantly shows itself in her presentation of the material. She makes nursing appear more than a profession: a culture in which the nurse's whole personality may be creatively employed. The illustrations, which are partly photographic and partly pen or pencil drawn, are excellently chosen for their practical value.

The American textbook by Bertha Harmer and Virginia Henderson is equally comprehensive, but illustrates strikingly the difference in the American attitude to the

subject. It has an exuberance, a lavishness, and an imaginative liveliness which are stimulating but seem sometimes to stray over the bounds of practice. The first edition appeared in 1922, but the text has now been completely revised. What might be called the A B C of nursing is dealt with in Part II, on the fundamentals of nursing care; the other divisions cover assistance with diagnostic and therapeutic measures, and an introduction to medical and surgical nursing. A considerable amount of description and photography seems to be allotted throughout the book to matters which are interesting rather than important—for example, the variety of gowns and slippers available for use in hospital, and the elaborate bedside equipment which in this country would only be found in an expensive nursing home. If the book has a fault it may be this high proportion of refinement to bread-and-butter; it might perhaps be regarded rather as an advanced than as an introductory textbook.

The aim of Miss Frost's work seems more philosophical—to point out to the nurse attitudes and lines of thought by which she can perceive the reality of the patient's situation and her own. The sections on what sickness means respectively to the individual, the family, and the community, and on what it means to have heart disease, syphilis, or tuberculosis, will stimulate valuable reflection. The chapter on out-patients contains some useful summaries of actual case histories. A syllabus of social nursing is laid down for the successive years of a nurse's training. The final chapter deals with the administrative problems raised by the need to provide adequate nursing services for a community. The work may have real value in suggesting broad ideas to persons in responsible places, but it seems rather speculative and diffuse for the nurse who is chiefly concerned with practical problems.

Mental nursing is on the whole an unpopular profession and does not receive nearly so much attention as it deserves. Its problems are substantially the same in all countries, and Harriet Bailey's book will lose practically nothing in value by its passage of the Atlantic. The short historical section and the legal chapter are perhaps not applicable in this country, but English catatonics and maniacs behave precisely like American ones and need precisely the same kind of care. This handbook is practical from beginning to end, and any mental nurse will find it good value, not only in preparation for examinations but also in the everyday problems of his or her work. It has a useful bibliography and a glossary of technical terms.

HAVELOCK ELLIS SELF-PORTRAYED

My Life. By Havelock Ellis. (Pp. 542. 15s.) London and Toronto: William Heinemann Ltd.

Autobiography is a dangerous enterprise. When Havelock Ellis died last year the Press resounded with praise of his great work; great indeed since it has profoundly influenced the most vital of human relationships. Some men are greater than their work, but from his own account Havelock Ellis was not one of these, and unfortunately this autobiography tells us little of his work, being chiefly devoted to his relations with his wife—and other women. Naturally we did not expect reticence, but were not prepared for such a complete lack of humour. He is able to say in all humility and sincerity that he owes his temperate and cheerful acceptance of the world to the imperturbable mediocrity of the Ellises. Yet if he had been able to laugh at himself his experiences would not have been so tragic; however, the world has gained through his sufferings. His life seems to explain the curious contrast between his magnificent head with features deeply furrowed by thought, and his clumsy gestures, furtive shyness, and insignificant voice.

He started to write this book when he was 40, and it has been rewritten and revised until it is sometimes difficult to determine whether he is giving his impressions of events at the time or his idea of them twenty or even forty years later. Indeed, though his childhood stands out clearly, the record of the adolescent Ellis appears like a palimpsest on which later mental attitudes have been superposed. It is significant that his birth coincided with the publication of *The Origin of Species,* which entirely remoulded biology into a shape attractive to his mind. Yet at first he was a schoolmaster, and did not decide to take up medicine until he was 21. Like Robert Bridges, he felt that although a doctor's life was not his career a medical training was the necessary portal to it; but unlike Robert Bridges he showed no ability as a student and never practised except as an occasional "locum." It was while he was still a medical student that he started the Mermaid Edition of the Elizabethan Dramatists, for which we should be much beholden to him. His edition of Marlowe, which in those far-off days of cheap books cost only half a crown, played an important part in reviving interest in the drama of the Renaissance. Yet misfortune early dogged his literary steps, for not only did the appendix to this book excite such hostility that it was cut out, but in the midst of the successful career of the series his publisher, Vizitelly, was actually sent to prison for publishing Zola, and another publisher took over the series, who removed Ellis's name from the volumes. There was poetic justice for this unethical procedure, for the series soon languished and died after being taken out of his hands. The story of the prosecution of Bedborough for innocently selling Ellis's *Studies in the Psychology of Sex* is well known; what is not so well known is that the police not only disapproved of Bedborough on account of anarchist activities, but that they knew, as Ellis did not, that the publisher, de Villiers, was a German of many aliases who had been sentenced to hard labour for forgery and other frauds. This man finally poisoned himself when some six years later he was again "wanted" by the police. To complete the fiasco, Bedborough's solicitor, "a limp, shady, and shabby figure," embezzled the money raised for the defence and was struck off the rolls. There seems to have been a lack of worldly wisdom somewhere.

Far too much space is devoted to the correspondence between himself and his wife. There are literally hundreds of pages of reiteration in letters which, as he says, were intended for no other eyes than their own. Edith Oldham Lees was an able woman, and shone as a lecturer and dramatist, but marriage of a philanderer to a lesbian, respectively introvert and manic-depressive, while providing material for his special studies, must indeed have led to difficulties. They adored and tortured each other. The similes of Calvary and crucifixion frequently recur in their own descriptions of their feelings. She suffered most and created least; however, as she said, "Love remains, if it is love, whether it wears a veil or has its finger to its nose." Ultimately her mind failed and it came to a legal separation; to add a comic touch to a tragic situation, after signing the deed in the presence of lawyers they went out to lunch together! Yet he is able at the end to feel quite sincerely "the weaknesses and defects were overcome . . . by accepting the facts of constitution and temperament as they come from Nature and making of them an act by which failure could be woven into success." And of himself he says: "I have always been conscious that beyond the clamour of the world, below

the surface of my life, there brooded a peace that nothing could ever take away. I have worked for the world; I have been very indifferent to any good or evil the world could do me. I smile alike at its blessings and its curses." In face of that sentence the shrewd winds of disillusionment, that rustled these pages for one admirer at least, are stilled.

MEDICO-LEGAL PROCEEDINGS

Proceedings of the Medico-Legal Society of Victoria during the Years 1937–8. Edited by John V. Barry, Barrister-at-Law, and A. E. Coates, M.D., M.S., F.R.A.C.S. Volume III. (Pp. 248. For circulation among the members of the Medico-Legal Society of Victoria.) Melbourne: Brown, Prior, Anderson Printing, Ltd. 1939.

Medical jurisprudence is attracting an increasing amount of attention in Australia. The Medico-Legal Society of Victoria, which is affiliated to the British society, has already published two volumes of its proceedings. The third volume contains eight papers on widely different subjects, with an account of the discussions that followed them. Dr. Ivan Maxwell spoke on "Ductless Glands and Human Personality"; Mr. Arthur Dean dealt with "Medical Discoveries and the Patent Law," and showed the great difficulty which would be found in defining medical inventions if a proposal were ever made to exclude them from the operation of the patent laws. He discussed fully the thorny question of whether medical patents should be granted at all. Much of his work concerns the law of this country, and his paper should certainly be referred to by all interested in the subject. The treatment of sexual offenders constitutes as much of a problem in Australia as here, and Judge A. W. Foster advocates in his paper a detailed solution which includes a psychiatric clinic and a special institution much on the lines of those which are nearing fruition in this country. A paper on "Liability arising out of Hospital Treatment," by Mr. Justice Lowe, gives an exhaustive review of the decided cases. The essay on "Poisons" by Dr. R. J. Wright Smith contains some interesting local material. Dr. E. C. Coppel's paper on "The Judicial Development of the Law" shows his deep learning, but has nothing directly to do with medicine; Dr. John Kennedy, dealing with "Injury in Relation to Accident," makes some interesting observations on the conflict between medical and legal opinion in cases of hernia; and Mr. J. V. Barry closely examines the trial of Rex *v.* Bourne. The fact that these papers were written and delivered in Australia detracts in no way from their general usefulness.

Notes on Books

The work on *Practical Food Inspection* by C. R. A. MARTIN, which now reaches its second edition, has been carefully revised and new material introduced. Volume I is concerned with meat, and Volume II with fish, poultry, and other foods. While the general attitude of the author to his subject is practical, systematic information is not withheld. This, for the inquiring reader, lends added interest. Two minor imperfections of entomological classification which we noted[1] in the first edition have been corrected. The problems of food-poisoning are judiciously presented, and the misnomer "ptomaine poisoning," which appears to die hard, is properly condemned. The book covers its field well. It will continue to serve as a reliable guide to all engaged or interested in the important service of food protection. The publishers are H. K. Lewis and Co., and the prices, for Volume I, 15s., and Volume II, 12s. 6d.

[1] *British Medical Journal*, 1933, **1**, 66.

The various chapters of Dr. P. B. BHATTACHARYA'S *Handbook of Tropical Diseases* are grouped on an aetiological basis under nine sections dealing with such matters as infective diseases due to the commoner protozoa, bacteria, filterable viruses, spirochaetes, and helminths; vitamin deficiency diseases; snake bites and scorpion stings; and the physical effects of sun and heat. Two appendices are given, the first dealing with the diagnosis of fevers and diarrhoeas in the Tropics, and the second setting forth a list of prescriptions. The arrangement of each chapter is to some extent tabular, so that reference by the student is facilitated. As the book is designed for Indian students and practitioners some important tropical conditions not found in that country, such as yellow fever, trypanosomiasis, and certain helminthic conditions, are omitted. There are a number of illustrations which unfortunately give little idea of the actual appearance of the specimens depicted, and those in colour are particularly poor. The book is published in Calcutta by U. N. Dhur and Company at Rs. 7-8-0 (15s.).

Preparations and Appliances

TECHNIQUE OF INTRAVENOUS BLOOD ADMINISTRATION

Dr. CYRIL POLSON of the University and St. James's Hospital, Leeds, writes:

Just as the necessity to cut down upon a donor's vein has passed, especially if a sharp 15-gauge needle be used, so also should there be fewer veins exposed for the purpose of giving blood or glucose saline. Mr. F. R. Edwards (*Journal*, November 11, 1939, p. 957) described a vein-seeker which simplifies the entry of collapsed veins. His apparatus and technique have been adopted, and somewhat modified as now described. The vein-seeker consists of: Bayley's type of needle, 18 gauge, with short surgical point, 1¼ inches long; 40-mm. glass window which is connected to the needle by 55 mm. of Pará rubber tubing and fitted with a large black rubber teat. The total length of the outfit is 6¼ inches, and it can be easily manipulated with one hand.

While the vein is sought and found an assistant assembles the blood-giving unit and runs blood through it to clear the delivery tube of air. This tubing is fitted with a glass connexion, 60 mm. long, 5 mm. bore. As soon as blood fills the vein-seeker the teat and glass window are removed by scissor-cut through the rubber connexion, close to the "window." It remains to insert the glass connexion of the blood-giving unit, to anchor the apparatus to the patient's arm, and to regulate the flow of blood to the desired rate. Satisfactory anchorage of the seeker and delivery tube is ensured by three bands of "elastoplast"—(*a*) over needle shank, (*b*) over the glass connexion, and (*c*) over the lower end of the rubber delivery tube, which passes between the patient's thumb and forefinger. An alternative would be to remove the rubber teat and attach the delivery tube directly to the vein-seeker. This, however, excludes the glass connexion used as a window in the delivery tube, through which to observe the escape of air bubbles.

The blood-giving unit employed closely resembles that described by Mr. H. S. Shucksmith in the *Journal* of February 10 (p. 216), which in its essentials is that approved by the Medical Research Council (Dr. Janet Vaughan, *British Medical Journal*, 1939, **2**, 1084). The technique now described avoids the somewhat awkward arrangement resulting from the insertion of a needle, connected with the blood-giving unit, into the vein-seeker. It is somewhat more complicated than direct attack on a vein by needle, but the use of a vein-seeker ensures that a vein has been entered, which is not otherwise always certain.

The vein-seeker is made by Messrs. Reynolds and Branson, Ltd., Leeds.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY APRIL 27 1940

THE CAUSES OF INFLUENZA

When the method of ferret inoculation devised at the National Institute for Medical Research led to the isolation of a virus which causes influenza the vexed question of the aetiology of this disease appeared to have been settled once and for all. The problem was solved, although the solution proved to be less simple when it was found that strains of the virus obtained from different sources were by no means identical. To previous evidence of this multiplicity may now be added the observations of R. M. Taylor and his co-workers,[1] who compared five Hungarian strains of the virus with the classical English and American strains by the methods of both cross-neutralization with immune serum and cross-protection in actively immunized mice. They found the Hungarian strains antigenically distinct from the other two, and indeed not entirely identical one with another, although all five were isolated within a short period during an epidemic of influenza in Budapest in 1937. The bearing of these antigenic differences on the possibility of artificial immunization is obvious. There is some suggestion in these authors' results, as there has been in others', that strain specificity is lost as the degree of immunity increases, but the prospect of securing solid protection against attack by so heterogeneous an invader is nevertheless poor. In fact such attempts at active immunization as have hitherto been made have not had encouraging results. Two further such attempts have recently been reported: R. M. Taylor and M. Drefuss[2] gave a single injection of formalinized virus to 306 persons, and although an outbreak of influenza conveniently occurred shortly afterwards there was no significant difference in its incidence in these and in 336 controls. This experiment was made in Hungary. The five Hungarian strains of virus already referred to were isolated during the course of the outbreak, and the virus vaccine used was made with the WS strain, the antigenic difference of which, since established, may account for its apparent failure. In another prophylactic experiment reported by C. M. Stuart-Harris, Wilson Smith, and C. H. Andrewes[3] 483 boys in a naval training ship were given injections of formalinized virus without apparent effect on the subsequent incidence either of virus influenza or of febrile colds and pharyngitis.

The last-named authors have another story to tell of much wider import—one, indeed, which reopens the question of the aetiology of the disease. Hitherto failure to demonstrate virus in a case of apparent influenza, unless explicable by some technical imperfection, has been taken to mean that the diagnosis was incorrect. The careful analysis of clinical features[4] showed that there were more or less recognizable differences between those cases in which virus could be isolated and those in which it could not. Whether the term "influenza" should be reserved for the former was a debatable question beside the present point, but at least they formed an entity, clinically as well as aetiologically. The new factor in the situation is that in the epidemic of January to April, 1939, cases having the clinical features of virus influenza failed in the great majority of instances to yield the virus. Ferret inoculations were consistently negative in January; in the two succeeding months they gave only 12 per cent. of positive results, while in only one-third of the cases so tested was there an increase in virus-neutralizing antibodies in the serum. Although no results have hitherto been published, we are informed that similarly negative results were obtained during the more serious epidemic of recent months. True influenza can, therefore, be caused by some agent other than a ferret-pathogenic virus.

Stuart-Harris and his colleagues and H. A. Reimann and W. P. Havens,[5] who also failed to isolate the virus during an epidemic in Philadelphia, incline to the view that another virus, to which the ferret is not susceptible, is responsible for these cases. In both of these investigations some attention was given to the visible flora of the upper air passages and nothing characteristic was found. That anything so banal as an ordinary bacterium should be capable of producing influenza is contrary to present-day belief, but in view of the new situation which has now arisen we venture to suggest that this possibility should perhaps be re-investigated. Much of the information about the flora of the secretion in cases of influenza is based on the study of nasal washings or garglings obtained primarily for the purpose of isolating virus. Such material is unsuitable for bacteriological study; it is bound to contain salivary bacteria in such overwhelming numbers that even if the exudate in the air passages proper were swarming with a single micro-organism this might not be identified, and the fact of its predominance at the site of the infection could certainly not be known. Material intended for bacteriological examination needs to be collected with greater care than is necessary when the object of search is a virus, and until virus-positive and virus-negative cases have been compared bacteriologically by a suitable technique the possibility remains that visible micro-organisms are not as indifferent in this connexion as it has lately been fashionable to believe.

It is plain that influenza has two possible causes, of which the known is subdivisible; the unknown, whatever its nature, is equally likely to be multiple. That acute catarrh of the upper air passages can be caused by a number of different agents seems the more probable from the fact that the immunity succeeding an attack is often only transient. Surely the time has come for considering how to prevent this form of disease by a method other than the unpromising one of artificial immunization. With monotonous

[1] *Amer. J. Hyg.*, 1940, **31**, 36.
[2] Ibid., 31.
[3] *Lancet*, 1940, **1**, 205.
[4] C. H. Stuart-Harris, C. H. Andrewes, and W. Smith. Spec. Rep. Ser. Med. Res. Council, No. 228, 1938.
[5] *Arch. intern. Med.*, 1940, **65**, 138.

regularity, though in form and extent varying from year to year, this disease appears when we herd ourselves together in ill-ventilated places in winter. The free interchange of micro-organisms so promoted is essential to its genesis and spread. How can a disease so clearly determined by insanitary conditions be effectively checked by anything but an improvement in these conditions? In discussing this broader aspect of the problem two years ago we referred to the possibility of rendering air bacteriologically clean by chemical means. Evidence since forthcoming has shown this to be possible: air can be disinfected chemically just as water can, and by concentrations of disinfectant which are surprisingly small. More spacious buildings and better systems of ventilation are the proper remedy for air-borne infection whenever they are feasible; where they are not, the chemical method, hitherto almost untried, offers a promising scope for study.

THE FOOD PROBLEM

For some years the problem of improving the national standard of physical fitness has been engaging widespread attention, and the close association of nutrition with physical fitness has become increasingly appreciated. The outbreak of war has brought with it the realization that the success with which we grapple with the enemy of malnutrition at home will be no small measure of our success in the field of war. Those interested in the application of our advanced knowledge of nutrition to the practical needs of war view with concern the controversy that surrounds the subject and the lack of clear ideas as to how we should best use the agricultural resources of the country. Sir John Orr, with the assistance of Mr. David Lubbock, in a small book recently published, *Feeding the People in Wartime*,[1] makes a highly important contribution to this subject which demands and will doubtless receive the closest attention of all who are concerned with the organization of our food supplies.

The advance of scientific knowledge during the past five or six years on the essentials of adequate nutrition has been remarkable. The importance from a health point of view of the vitamin and mineral content of food has led to the estimation of food values on a "protective" rather than a calorie basis. It is now possible to lay down a minimum standard of protective food necessary to maintain health, to which can be added the amount of energy-providing food suitable to the needs of the individual. It is the practical application of this knowledge which presents difficulty. The education of the public, as well as those concerned with food supply and distribution, in the supreme importance of the protective foods is one. The co-operation of the agricultural industry is another. But the biggest problem of all is to bring the protective foods within the means of the lowest wage-earner. Sir John Orr estimates that one-third of the population lacks a sufficiency of protective food in its diet. This is due to the prohibitive price of dairy produce by reason of the high cost of production and distribution. We provide enough milk in this country to satisfy all the needs of the population. The people have been urged to drink more milk, and, for the most part, it seems that those who can afford it have done so. The consumption of milk has gone up, but not in that section of the population that needs it most. The price is out of their reach; yet we sell 40 per cent. of our surplus milk to the manufacturer at from 5d. to 10d. a gallon. Sir John urges the need for bringing the price of basic foods to a level which makes them available to the poor and pegging the price down to that level by subsidy and control.

For a good many years the standard of nutrition in this country has been steadily improving, and this is particularly true of the past five or six years. Not only is it important to prevent a state of war checking this improvement, but it is desirable and possible to accelerate it. The Government has control of the supply and distribution of food. It has the duty of feeding large and ever-increasing fighting forces. It has recognized and adopted the policy of controlling consumption by rationing, by subsidies, and by regulation of prices. There is an increasing demand from all sides for the adoption by the Government of a long-term food policy designed to supply a diet adequate for health for every family. In the absence of such a policy appeals to the public to avoid waste, to cultivate allotments, and to improve the art of cooking are of minor importance, desirable as they may be. The formulation and carrying out of such a policy require the consideration and co-operation of the many Government Departments and industries concerned in this country and in our food-producing colonies.

A year ago the British Medical Association called a conference of representatives of medicine, agriculture at home and over-seas, industry, and education to consider this question. After three days' discussion, in which many well-known authorities took part, the conference arrived at a resolution which was carried unanimously. This urged upon the Government the formulation of a long-term food policy in which the requirements of health, agriculture, and industry should be considered in mutual relation. It advocated measures to secure the more ready availability to all sections of the community of foodstuffs which are held desirable on nutritional grounds, and an educational campaign to encourage their increased consumption. In the vastly changed conditions in which the nation finds itself to-day this resolution stands underlined.

[1] By Sir John Orr and David Lubbock. Macmillan. (1s. 6d.)

EVERYBODY'S BUDGET

Sir John Simon's latest Budget certainly satisfies the rule that the heavier the burden the wider it should be spread. There are few of the major indirect taxes which he has not increased, and we are promised a purchases tax which will fall on general commodities, certain large groups excepted. The income-tax payer, somewhat apprehensive lest the foreshadowed 7s. 6d. in the £ should prove insufficient to satisfy the

Chancellor of the Exchequer, is relieved of that fear, but his relief will in many cases be modified by the promise that provision will be made for 1940–1 surtax to be charged if necessary on all incomes over £1,500. Incidentally a reduction of £500 in the limit of exemption from surtax would seem to imply a rise in the rates now applicable to incomes of £2,000 and upwards. In justification of last year's increase in the motor vehicle duty Sir John quoted the striking fact that the receipts from private motor cars for last December, January, and February were in excess of those for the corresponding months of the previous year, and that in spite of this year's preference for licences for three months instead of for longer periods. Fortunately this agreeable surprise did not tempt the Chancellor of the Exchequer into proposing a further increase for this year.

The medical profession, as such, appears to have no grievance against the Budget. Like other income-tax payers, medical men will have to pay the additional charge, and some of them may in due course reluctantly enrol in the ranks of the surtax payers, and when they consume beer or spirits, strike matches and light pipes, post letters or use the telephone, they can feel that they are making an additional contribution, however small, to the immense cost of the war; but there seems to be no burden which can properly be said to fall more heavily on the medical profession than on other sections of the community. That, of course, is as it should be, but some specific forms of taxation have been so popular in the past—for example, the duties on motor vehicles and petrol—that there is some satisfaction in knowing that this time the professional man is not particularly hard hit by a new or an increased tax. One other point should perhaps be mentioned. It is clear that while the Chancellor's main object, as always, is the collection of revenue, he has paid special regard to the desirability of reducing private consumption, or at any rate of directing it away from undesirable channels. That is a matter which is likely to grow more important as the war proceeds.

SURGERY IN 1939

It is not surprising that with war imminent a number of papers and several textbooks on the treatment of war wounds appeared during 1939. Some of these were written from the experience of 1914–18, and showed little imagination on the part of their veteran writers, but outstanding contributions came from Dr. J. Trueta,[1] whose experience of modern warfare and aerial bombing in Spain enabled him to supply us with really valuable knowledge. The early application of plaster-of-Paris to injured limbs and the absence of gas infection are two of a number of revolutionary changes which make certain recent works on war surgery merely of academic or historical interest. Trueta's papers have been and should be widely read, for if the time comes it is these methods that are called for. In the 1939 *Year Book of Surgery*, edited by Evarts A. Graham[2] of St. Louis, we find recorded several advances which surgery has made in that time, the most outstanding being perhaps the first successful case of surgical ligation of a patent ductus arteriosus by R. E. Gross and J. P. Hubbard[3] of Boston. The operation was performed on a girl aged 7½ with the object of reducing the work of the heart and in the hope of preventing bacterial endocarditis. The great advantage of obliterating the shunt between pulmonary artery and aorta was shown by a rise after the operation of the diastolic pressure from 38 to 80 mm. mercury. Recoveries from suppurative pylephlebitis after the use of sulphanilamide have been recorded, and it would be interesting to know whether any surgeon ever witnessed a recovery in what was clinically an undoubted case before sulphonamide compounds were used. If not, here is a really good case for sulphanilamide therapy. The injection treatment of hernia is reviewed, and the conclusion appears to be that in general the end-results are not comparable with those obtained by operation but are sufficiently good for injection treatment to be recommended when operation cannot be considered for economic, personal, or physical reasons.[4] There still appears to be some doubt about the existence of the cardiac sphincter and the mechanism of the closure of the lower end of the oesophagus. Professor J. G. Dillon[5] of Moscow finds from radiological investigations that the passage of food from the lower end of the oesophagus into the stomach takes place during expiration when the diaphragm relaxes. During diaphragmatic contraction at the time of inspiration the entrance of food into the stomach ceases, and the deeper the inspiration the more complete, apparently, is the gastric blockade. The hold-up appears to be due to the para-oesophageal muscular fibres of the diaphragm, and this work supports the contentions of those who have held that there is no such thing as a gastric cardiac sphincter. Max Saegesser[6] of Berne has written favourably of a sign present in cases of splenic injury. Pressure between the sternomastoid and scalenus anticus muscles on the left side (over the "splenic point") causes violent pain, contrasting with pressure over the right corresponding point. The reason given is that sensory branches pass from the splenic capsule to the trunk of the left phrenic nerve. The sign is positive in incomplete rupture of the spleen—for example, where there is a haematoma within the splenic capsule. Saegesser believes that when this sign is present splenectomy is justified. Experimental work during the year has also yielded interesting results—for example, an investigation of the effects of instrumental dilatation of the papilla of Vater carried out at the Peter Bent Brigham Hospital[7] showed that no permanent enlargement of the opening resulted and scarring of the papilla took place, while, earlier still, exudation and oedema produced obstruction. During 1939 the dehydration treatment of head injuries has been steadily coming into its own, and with its increased use complications such as sustained delirium (cerebral irritation) have been noticeably absent.

POLIOMYELITIS AND THE BOWEL

Increasing attention has been recently paid to the intestinal tract as a portal of entry in poliomyelitis. It may be recalled that G. O. Barber[8] described in this *Journal* a small outbreak in a school which he could only explain as having been transmitted by food. If the virus can so be conveyed it seems necessary to assume an excremental

[1] *British Medical Journal*, 1939, **2**, 694, 877, 1073, 1197.
[2] Chicago: Year Book Publishers; London: H. K. Lewis and Co. (Pp. 796. 3 dollars.)
[3] *J. Amer. med. Ass.*, 1939, **112**, 729.
[4] Ibid., 1938, **111**, 2009.
[5] *Khirurgiya* (Russ.), 1939, **2**, 151.
[6] *Zbl. Chir.*, 1938, **65**, 2179.
[7] *Arch. Surg.*, 1939, **38**, 358.
[8] *British Medical Journal*, 1938, **2**, 1137.

origin for it, and in fact the virus has been shown to be present in the faeces during an attack of poliomyelitis, and has even been recovered from sewage. Improved methods of treating intestinal contents in order to render them suitable for injection into monkeys have stimulated study in this direction, and there are several recent reports bearing on it. C. Kling and his colleagues[9] recovered the virus from the stools of an abortive case of poliomyelitis in Sweden. J. A. Toomey[10] records failure to demonstrate the virus in the bowel of monkeys inoculated intracerebrally—a fact which, as he points out, has no bearing on the route of natural entry—but positive results with the stools of human cases. Toomey has maintained for years that the gastro-intestinal tract is the portal of entry, and he goes further in attributing some importance in invasion by this route to local conditions in the bowel. A more significant series of observations is reported by S. D. Kramer *et al.*[11] on the inmates of a children's home in Detroit, where five cases of poliomyelitis occurred. The stools of these cases were not examined, but virus was recovered from the stools of five of the other fifteen children, three of whom exhibited no signs of illness, while the other two had transient fever. It was also found in the stools of a nurse working in the home. That the agent of the disease can be so widespread among unaffected persons in circumstances such as these has hitherto not been known. While appearing to confirm the well-established belief that healthy carriers can convey the infection, these observations suggest a mode of transmission other than the hitherto accepted but hypothetical aerial spread. It is supremely unfortunate that the detection of poliomyelitis virus is not feasible by simpler and less expensive means than monkey inoculation, or many more opportunities might be taken of pursuing this obscure and important subject.

CANCER RESEARCH

In the thirty-seventh annual report of the Imperial Cancer Research Fund Dr. Gye remarks that "the demonstration that malignant tumours can be produced at will in almost any part of the body proves that the occurrence of some cancers at least is related to environment which can be controlled, and is not dependent entirely upon some mysterious, uncontrollable, inborn peculiarity"; the facts lend assurance to the belief that cancer is likely to be mastered by patient research. Investigations in the Fund's laboratories have been concerned with the histological and chemical changes in the tissues which precede the development of malignant tumours in response to the application of carcinogenic substances. It has been found that polycyclic hydrocarbons which have the property of inducing cancer evoke a histological reaction which is characteristic and possibly specific, for it has not been found after application of chemically related hydrocarbons which are not carcinogenic. It has been observed also that in certain concentrations substances which inhibit the glycolytic processes in the epithelial cells delay the development of tumours in response to applications of carcinogenic hydrocarbons. In higher concentrations, however, the same substances do not inhibit tumour formation but sometimes accelerate it. It seems that substances with the biochemical property of inhibiting cell respiration or glycolysis can, under different experimental conditions, either retard or accelerate tumour production. The great success of sulphonamide compounds in certain infections has focused attention on the potentialities of chemotherapy. Dr. Gye discourages expectations of the easy discovery of a substance able to discriminate between normal and malignant cells; microbes are alien living organisms, whereas the malignant cell is part of the body and apparently does not differ in its antigenic properties from the corresponding normal cells. Nevertheless tissue cultures have shown that the proteolytic activity of malignant cells in the presence of leucocytes can be stimulated by some chemotherapeutic substances, notably the trypanocide germanin. In adult animals the action is practically restricted to tumours, since it occurs only in actively growing tissues infiltrated with leucocytes, and it is conceivable that intense stimulation of proteolysis might break down the connective-tissue framework of tumours and produce sufficient disorganization to cause retrogression. Animal experiments have been inconclusive, but the possibilities of chemotherapy are being further explored. The work on tumours caused by filterable viruses has been directed towards elucidation of the antigenic structure of the viruses of filterable tumours and the detection of similar viruses in tumours which are not filterable. The first record appears of the transmission by filtrate of a spontaneous sarcoma. It is to be hoped that the war will not interfere to too great an extent with the highly important work that is being done at Mill Hill under Dr. Gye's guidance.

[9] *Acta med. scand.*, 1939, **102**, 629.
[10] *Arch. Pediat.*, 1939, **56**, 693.
[11] *Publ. Hlth. Rep.*, Wash., 1939, **54**, 1914.

FATAL TUBERCULOSIS OF THE PITUITARY

Tuberculosis may involve the pituitary gland in one of several ways. In generalized tuberculosis miliary tubercles may be found in the gland, which may also be affected when tuberculous meningitis extends to its neighbourhood. Massive caseation may lead to pressure symptoms or, following pituitary insufficiency, to dystrophia adiposogenitalis. In a review of the literature Professor Berblinger[1] draws attention to that form of tuberculosis of the pituitary which causes symptoms of Simmonds's disease—amenorrhoea or impotence, loss of hair, trophic disturbances of the nails, dryness of the skin, low blood pressure, vomiting, fatigue, and cramps. In many instances there is pronounced loss of weight, a fact that has given rise to the term "pituitary cachexia," but as this symptom may be absent even in the late stages of the disease, when coma supervenes, the term "Simmonds's disease" is preferable. These symptoms may, however, remain unrecognized, as in the case reported by Berblinger. A woman aged 52 fell on the back of her head; she vomited; but a doctor was not called in until two days later, when the patient was found to have nausea and impressed the doctor as being "psychotic." Two days later cramp set in; the patient then became unconscious and was removed to hospital. The urine was found to be normal, and the patient died in coma the following day. At necropsy examination of the chest revealed calcified foci of a primary tuberculous lesion, apical scars, and a small cavity at the left apex with a few bronchopneumonic patches in the bases and pleural adhesions. There was marked atrophy of the pituitary, atrophy of the adrenals, and an almost complete absence of pubic and axillary hair. Other findings at necropsy were some emaciation of the body, healed aortic endocarditis, some atheroma of the aorta, and cholecystitis. Both macroscopical and histological examination of the

[1] *Schweiz. med. Wschr.*, 1939, **69**, 1217.

brain failed to disclose any injury or lesion that might have caused death. Histological examination of the pituitary showed typical tuberculous changes and acid-fast bacilli. Berblinger concludes that death was caused by atrophy of the pituitary following tuberculosis of the gland, and that the condition might justifiably have been diagnosed as Simmonds's disease. He emphasizes that the recognition of tuberculous involvement of the pituitary is not without clinical importance. In this case, in which the tuberculosis of the lungs was clearly curable and the tuberculosis of the pituitary gland was non-progressive, such recognition followed by suitable hormone therapy might, he believes, have saved the patient's life.

RECESSIVE DEFECTS AND INBREEDING

Many rare, or moderately rare, harmful recessive genes are known in man—for example, those causing infantile and juvenile amaurotic idiocy or some of the genes responsible for Friedreich's ataxia. Any such harmful gene is always appearing anew as the result of mutation; but the reproductive rate of affected persons is lowered or *nil*, so that the harmful gene is also being eliminated. It is easily shown that heterozygotes must be far commoner than the affected homozygotes; it can also be shown that if mating were random the population would be in equilibrium. If a condition appeared in 1 in 100,000 of the population, and affected persons could not reproduce at all, one person in every 159 would be heterozygous—that is, heterozygotes would be more than 600 times as common as the affected persons themselves. Each affected person would carry with him to the grave two of the harmful genes, one upon each member of the chromosome pair concerned. This loss of genes would be exactly balanced by the appearance of two new heterozygotes, each bearing an abnormal gene on a single chromosome, for the excessively remote chance of a homozygote appearing as the result of two simultaneous mutations in the parents can be ignored. This may be likened to a large lake of heterozygotes of constant level, into which flows a small stream of new mutant genes, and out of which flows a stream of the same size composed of the genes extinguished together with their homozygous possessors. Human mating, however, is not truly random. Apart from the occasional marriage of close relatives, it is clear that in many unions husband and wife would be found to have common ancestors if details were known for a considerable number of preceding generations. Consanguineous marriage increases the rate of occurrence of a recessive defect because heterozygotes will happen to marry each other more frequently than if mating were random. If a population has practised for many generations a certain constant average amount of inbreeding that population too is in equilibrium, though a different one. The entering and emerging streams are of the same size as before, but the lake of heterozygotes is reduced in size according to the closeness of the inbreeding. J. B. S. Haldane,[1] in an important paper in which he examines the effect of a change in the degree of inbreeding, points out that relatively large reductions must have occurred in Europe during the last two or three thousand years. There has been a change from small, more or less isolated, communities to much larger aggregates. During the last century alone the increase in urbanization and in transport facilities must have had a considerable effect. He shows that a relaxation of inbreeding causes a rapid fall in the number of affected homozygotes appearing. Heterozygotes become correspondingly more numerous, but as there are so many of them to every homozygote this effect is slight. The proportion of heterozygotes then increases steadily but very slowly; ultimately a new equilibrium is established, but not for a period which is to be reckoned in thousands of years. When the new equilibrium is attained the rate of occurrence of affected persons will have risen to its old level, but the number of heterozygotes will have greatly increased. There is no doubt that the present population is very far from equilibrium and that it enjoys a relative immunity from lethal and sublethal recessive defects compared with the population of some centuries ago. But the number of heterozygotes is steadily increasing, and a return in the future to the levels of inbreeding of the past would cause a startling increase in the frequency of such defects.

[1] *Ann. Eugen.*, Camb., 1939, **9**, 232.

MOBILE X-RAY UNIT FOR THE ARMY

At the Royal Army Medical College, Millbank, on April 19, Lieutenant-General Sir William MacArthur, D.G.A.M.S., accepted on behalf of the R.A.M.C. a mobile *x*-ray unit, the gift of Miss Iris Michaelis (who is serving in the French Army as an ambulance driver) in memory of her father, Sir Max Michaelis, a South African business man and philanthropist. Mr. S. F. Waterson, High Commissioner for the Union of South Africa, was present at the ceremony. Sir William MacArthur told how Miss Michaelis had come to him and asked what she could do to help the British Army, and he had mentioned to her the work of Lieutenant-Colonel D. B. McGrigor, who was designing a mobile *x*-ray unit for service at the front, whereupon Miss Michaelis said that she would like to be the donor of such a unit. Sir William added that if the war should end more quickly than most of them dared to hope there were innumerable useful purposes in this country which such an equipment would serve. The unit is mounted on a standard lorry chassis, and bears the inscription, "Michaelis *X*-ray Unit: South Africa." The equipment is such that it is possible to take radiographs of any region of the body, and to carry out all the procedures of screen examination and radiography which are possible in a general hospital. Electric current is obtained from a petrol-driven generator, which is packed underneath the unit when not in use. Thus it can operate in places where there is no electrical supply, and can also be used independently to reinforce existing plant. It also carries its own water supply in a special tank underneath the vehicle, and a jack is provided to maintain absolute steadiness when at work. The interior, which is air-conditioned, and also shock-proof throughout, is divided into two compartments. The larger of these is fitted compactly and ingeniously as an *x*-ray operating theatre, with a full-size table, movable *x*-ray tube, and screening stand. The other compartment can be quickly made into a most efficient dark-room, and is fitted with sink, pump for water supply, developing outfit, drying racks, viewing lantern, timing clock, and other accessories for quick manipulation of films. There is also a lead-lined cupboard for storing sensitive material, and a hatchway and a speaking tube communicate between the two compartments. Colonel McGrigor has been assisted in designing the unit by Messrs. Watson and Sons (Electro-Medical) Limited and Lagonda Motors.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

COMPLICATIONS OF VARICOSE VEINS

BY

A. DICKSON WRIGHT, M.S., F.R.C.S.

Varicose veins, though sometimes practically symptomless, often produce very definite symptoms such as real pain in the veins themselves, accentuated by either strenuous exercise or long standing. Itching, tiredness, and fullness in the legs towards the end of the day are complained of, as well as severe muscular cramps on exercise, especially when swimming; these cramps may be very severe at night after a strenuous day, and muscular soreness persists for forty-eight hours. So frequent are muscular cramps that in Germany varicose veins are known as "Krampfader."

Apart from the relief of these symptoms patients come for treatment of the varicose veins when complications develop. In this connexion it is most essential to note that these complications are not new diseases but further manifestations of the disordered circulation in the leg that produces a loss of balance between arterial inflow and venous outflow. This loss of equilibrium leads to loading of the tissues with oedema and katabolites, and as a result the normal mechanism of resistance to trauma and infection breaks down. Circulatory equilibrium must therefore be restored by treatment of the varicose veins, and by supportive treatment if the deep veins are also at fault. Once the circulation is put right and the leg remains free from oedema the ulcers and eczema will heal without the help of cod-liver oil, insulin dressings, healing rays, and a hundred and one other much-recommended local applications which consume time and money.

The main complications of varicose veins are thrombophlebitis, eczema, and ulceration, but in long-standing cases all the tissues of the leg suffer from the disordered circulation: the bones show periostitis and osteoporosis, the joints hypertrophic osteo-arthritis; the fascia and septa may ossify or calcify, and the muscles develop a peculiar hypertrophy comparable probably to the unhealthy cardiac hypertrophy in myocarditis. Pes planus arises in many cases, and with the development of painful ulcers the foot may become deformed from reflex muscular contractions.

Thrombophlebitis

Thrombophlebitis occurs in varicose veins twenty times as frequently as in normal veins, superficial or deep. The phlebitis is sometimes a complication of childbirth, operation, or serious systemic disease (typhoid, pneumonia, influenza, malaria, etc.). Having recovered from a complicating phlebitis of this type the patient is always prone to a recrudescence in after years in the same varicose veins or others which develop following the initial attack. It is these severe cases with a definite aetiological factor that require great caution and judgment as regards subsequent treatment of the veins by injections. In quite a different class are the bland idiopathic thromboses occurring in large varices of long standing. These cases can be safely injected after the attack is over.

The treatment of thrombophlebitis in superficial varicose veins should in all cases be ambulatory. It is courting disaster to put these patients to bed when thrombosis has occurred. When in bed the clot slowly extends along the veins and frequently spreads to the deep system, and once this is involved rest in bed becomes inevitable because embolisms start. The ambulatory treatment is safe because the varicose veins are generally affected in their lower more dilated parts, so that the veins above, being smaller, will not transmit the clots, which in any case are not detached because they are irregular in shape and of uneven calibre. If the inflamed veins are subjected to pressure the clots are made more compact, and the thickened vein walls are reduced in size and the condition quickly resolves and organizes.

Details of Treatment.—Strips of adhesive dunlopillo or sorbo rubber one-quarter of an inch thick are laid along the inflamed veins; it is best to bevel the edges of the rubber. One inch above the highest point of inflammation a double thickness of rubber is placed, and this is a great source of consolation to the nervous patient, who feels that the clot cannot pass this pad. The whole leg from highest pad to the toes is then firmly bandaged from above down with elastoplast (Fig. 1). The application is painful, but all is very comfortable in a few hours, and generally in two weeks the whole process has resolved. Especially difficult to judge are those cases in which thrombosis has reached the crural ring but the femoral vein is not yet certainly thrombosed; these cases should never occur if the proper treatment is instituted at once and phlebitis prevented from extending so high. Femoral thrombosis requires confinement to bed and possibly heparin treatment.

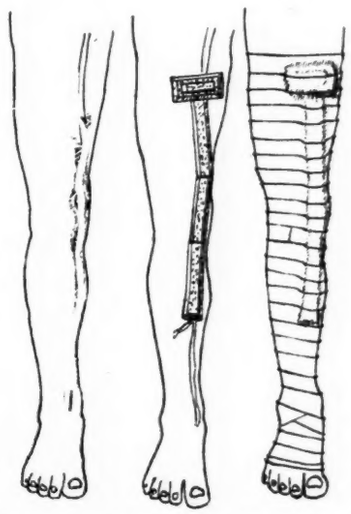

FIG. 1.—Inflamed vein is covered with sponge-rubber pads and firmly bandaged with elastoplast from above down.

Eczema

Eczema is seen very commonly, and seems to affect individuals with an allergic or gouty diathesis; and by the same token the eczema, although starting in the lower part of the leg, may generalize, with a special tendency to affect the neck and forearms. Sometimes the eczema is allergic in response to ointment or adhesive applied to an ulcer.

Treatment.—The treatment of the eczema is really that of the varicose veins, and this should be very radical, by

injections, with the help of the ligatures described in the previous article. If deeper veins seem to be affected and the oedema does not disappear when the superficial veins are treated, then supportive pressure treatment should be instituted. Elastoplast applied in the routine way for three days should be first tried and, if it suits, continued. If the eczema seems to be worse the eczematous area should be covered with lint smeared with this ointment:

Crude coal tar and zinc oxide	... ...	āā ʒj
Lanolin and petroleum jelly	... ...	āā ℥ss

and then firm pressure applied with elastoplast. If the patient shows definite allergy to sticking-plaster the support may be provided with cereban bandage or a gelatin paste bandage (Unna):

Zinc oxide	ʒss
Ichthyol	gr. ix
Gelatin	gr. xlv
Glycerin	ʒiij
Aq. ... ... ad	℥j

The technique of applying this paste is important: it can be purchased as an impregnated bandage (ichthopaste), or the paste can be melted in a water-bath and painted on the leg, a gauze bandage being dipped in the paste and applied to the leg. It is important not to apply the bandage in any routine way. Therefore, in the first place start from the *top* and apply a few turns, letting the bandage take whatever direction makes it lie flat upon the skin. The bandage is then cut and the next few turns are applied in the opposite direction and cut again, and so on until the whole leg is covered from the patella to the roots of the toes. The turns of the bandage run in all directions; no gaps are left, and the whole bandage is smoothed on to the surface of the skin much as one does with a plaster-of-Paris cast. To finish off, the bandaged leg is covered with a very firm crêpe bandage which is applied from above down; by so doing the bandage is not subsequently disturbed when pulling on pants and stockings. This crêpe bandage adheres firmly to the glue bandage underneath, and the two bandages make an excellent supporting bandage of unyielding gauze plus the elastic reinforcing pressure of the crêpe. This type of bandage is also useful after the closing of an ulcer to consolidate the healing and also in cases allergic to other types of bandages. The disadvantages are that it is messy and that much time is involved in its application.

Ulceration

This is the most dreaded complication of varicose veins and that which most often presents itself for treatment. The ulcers invariably occur within a certain area (Fig. 2). Any ulcer outside this area is not due to disordered circulation, so another cause must be found. Although all the ulcers due to venous circulatory disorder occur in this area it is wrong to call them varicose ulcers, as not only is this an oxymoron but varicose veins are often not present, deep venous obstruction or incompetency being the cause.

Syphilitic ulcers often occur in this area, but there may be coexistent scars or ulcers elsewhere which disclose the diagnosis. Syphilitic ulcers tend also to be multiple with bridges of skin between them (Fig. 3), show irregularity in shape, and are sometimes serpiginous.

Mycotic ulcers (Fig. 4) afflict this area and are suspected when the ulcers have a "ringworm" arrangement and run through the cycle of a clear vesicle turning purulent and bursting, to be followed by a large superficial ulcer which heals in the middle and smoulders at the edges. When this ulcer is all but healed the whole vicious cycle starts again. This life-history plus a tendency to spread to the foot makes the diagnosis clear, and what seems a miracle can generally be effected with the following paint:

Cignolin	... ...	gr. x
Ol. cad. (deod.)	... ...	♏xl
Benzol. rect.	... ... ad	ʒj

These mycotic ulcers sometimes persist for a quarter of a century, and to effect an instant cure with this paint constitutes a major therapeutic triumph.

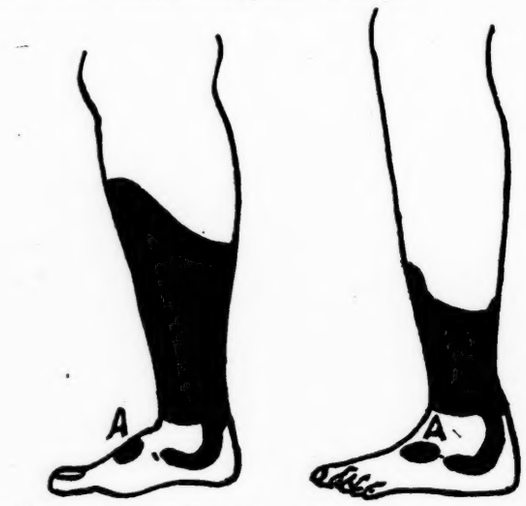

FIG. 2.—Ulcer-bearing area. The outer side is less affected than the inner, and the malleolar ulcers occur in a comma-shaped area behind and below the malleolus. In women a few ulcers occur in the unsupported area (A) in front of the shoe-strap.

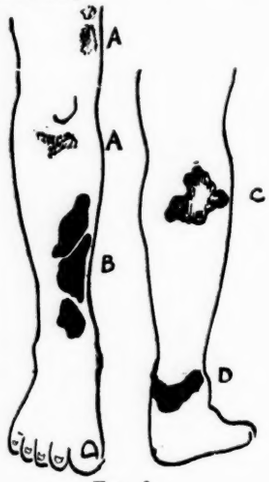

FIG. 3.

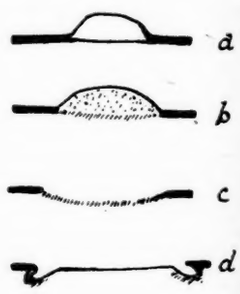

FIG. 4.

FIG. 3.—Syphilitic ulcers showing bizarre outlines, multiplicity, and narrow skin bridges (B), gummatous scars (A), a serpiginous ulcer healing in the centre (C), and unusual position (D).

FIG. 4.—Stages of a mycotic ulcer. (*a*) Vesicle. (*b*) Pustule. (*c*) Shallow painful ulcer. (*d*) Serpiginous ulcer healing in centre and extending at edges with undermining.

Factitious ulcers are common on the legs. The ulcers start in a gangrenous way (neurotic gangrene) and are geometrical in shape and distribution. In women they are usually circular and multiple and associated with hysteria; in men they are square and single, and are associated with the Workmen's Compensation Act (Fig. 5).

Splenic ulcers have been known since the reign of Charles I, and are associated with any cause of splenic enlargement (acholuric jaundice, leukaemia, sickle-cell anaemia, etc.).

Infantile paralysis and Bazin's ulcers are akin; they are due to ischaemic fat necrosis, and are treated by sympathectomy (Fig. 6).

Soft sores may be secondarily implanted or may extend by a serpiginous process from the groin. The ulcers have undermined edges and leave pigmented scars, sometimes with skin bridges. Some serpiginous ulcers also occur in the legs without Ducrey's bacillus being found;

FIG. 5.

FIG. 6.

FIG. 5.—Self-inflicted ulcers. (A) Female. (B) Male.

FIG. 6.—Ulcers of erythema induratum occurring in tuberculous diathesis (Bazin's disease) or following anterior poliomyelitis. Lower half of leg is "goosy" and cyanosed, and at A is the characteristic "heel bump."

but the treatment of all serpiginous ulcers with a negative Wassermann is the same—namely, destruction of the active part by diathermy and the treatment of the burn as a simple ulcer.

Ischaemic ulcers are large areas of superficial gangrene developing in the ulcer-bearing part in arterial and diabetic disease. Conservative treatment often pays handsomely, and good healing is obtained and amputation avoided.

Treatment of Gravitational Ulcers

The first type is a simple oval ulcer over the inner side of the leg above the malleolus and lying at the lower end of a long tortuous varicose vein. The vein is treated by ligature and injection and the ulcer by small tight strips of adhesive plaster (zopla), half an inch wide, which approximate the edges and flatten out the callous oedema (Fig. 7). When the veins are all thrombosed the cure can be completed with an elastoplast bandage, which helps the absorption of the clots and finally heals the ulcer (Fig. 8).

The second type is a larger ulcer in the same area with raised callous edges and surrounding pigmentation or eczema. Obvious causative veins may be seen or a history of remote femoral thrombosis may be obtained. If the former, treatment of the veins is as usual, but if the latter the varicose veins in the vicinity of the ulcer are treated, leaving the higher veins alone. The ulcer itself is first of all firmly and purposefully strapped with half-inch strips of rigid adhesive plaster to pull the edges together (Fig. 9), and over this is applied a chamfered pad of adhesive sponge rubber about twice the size of the ulcer, and finally a very firm elastoplast bandage from the toes to the knee (Fig. 10). The greater the oedema the greater the pressure of bandaging. The bandage is taken off after seven days and the treatment is repeated, except that it is well to apply the elastoplast bandage from above downwards this time: by alternating the direction of the bandage in this way there is less tendency to furrow the leg. If the leg is of a rather exaggerated shape, with a large calf, small ankle, and big heel, it is a good

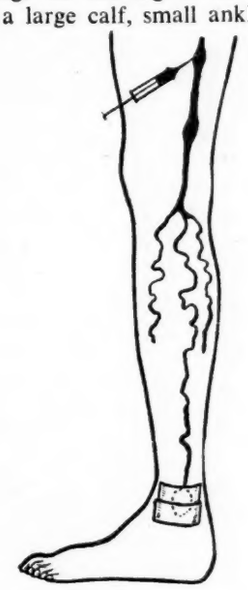

FIG. 7.

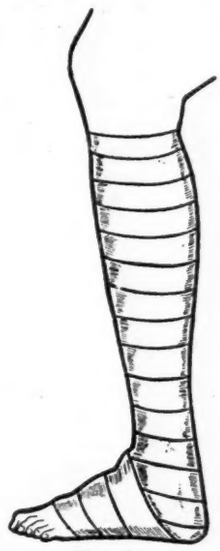

FIG. 8.

FIG. 7.—This type of ulcer is easily and permanently healed by ligaturing and injecting the causative veins. While the injections are being carried out the edges of the ulcer are pulled together with adhesive plaster.

FIG. 8.—Extent and method of applying elastoplast bandage for ulcers and post-injection induration.

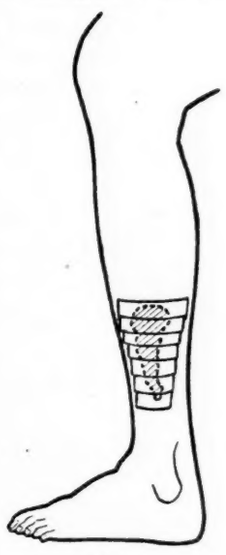

FIG. 9.

FIG. 10.

FIG. 9.—Edges of ulcer pulled together with strips of zopla.

FIG. 10.—Sorbo pad incorporated in bandage to soften edges of callous ulcer.

practice to bandage always from the top down, as for some quite inexplicable reason the bandage is more comfortable and certainly easier to apply. By this combined method of treating the veins and bandaging these ulcers heal steadily at the rate of about a square inch a week.

The third type is the giant ulcer of the lower part of the leg measuring anything from 10 to 40 square inches. If a bed is obtainable in hospital the treatment is easier to carry out, and with the bed blocked high and the diseased leg well raised on a chair the oedema

quickly disappears. During this time elastoplast is used to cover the leg, being changed every three days. In ten to fourteen days all oedema is gone and the ulcer is ripe for a thin Thiersch graft, which will take regularly and give a rapid healing. Once healed an Unna's plaster is carefully applied and the patient leaves hospital, the bandage being changed every eight weeks for a varying time according to the severity of the underlying condition. When the bandage is discarded an elastic stocking is worn, or an elastic bandage with a loop which goes round the instep is used.

If the patient will not come into hospital or a bed is not available the case is treated as the second type, and the epithelization is hastened by implanting small seedling skin grafts *under* the granulations (Fig. 11). The

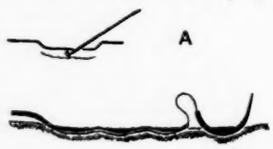

FIG. 11.—Methods of skin grafting: (A) with skin seeds; (B) with a worm of living skin insinuated under the granulations.

grafts are cut from the arm first as a long strip lifted up by a row of hypodermic needles and clamped by a ratcheted sinus forceps. Sewing of the wound thus made is easily done by passing fine silkworm-gut through the hypodermic needles. The graft is now chopped into eighth-inch squares, and by means of a blunt stylet small oblique furrows are made in the granulations, and into these are pushed the small grafts. Uniform "takes" are secured, and the patient can remain ambulant with no other dressing than the sticking-plaster bandage described. Many of these giant ulcers occur with a history of old white-leg, but some result from extensive varicose veins: in the former case continuous support by elastic stocking or bandage may be necessary; in the latter an unsupported life may be possible. Bearing in mind again the fact that the leg ulcerates and refuses to heal because of its bad circulation it is opportune to condemn any pedicle grafting to these ulcers and, by the same token, excision of the ulcer and its fibrous bed before skin grafting in the hope of getting beyond the disease. These procedures are quite unnecessary, and the relapses which follow them are sometimes much harder to treat as the result of this meddlesome surgery.

Illustrative Case.—A woman aged 42, after white-leg, developed above the ankle an ulcer of four square inches. She spent altogether eighteen months in hospital and had to undergo the ordeal of pedicle grafting on two occasions and Thiersch grafts once. When seen all the grafting had been in vain and the ulcer was just as it ever was. Purposeful strapping resulted in firm healing in less than a month.

Malleolar ulcers are the most teasing of all ulcers. Near the constantly moving ankle-joint, and under the shelter of the malleolus, effective strapping becomes very difficult and does not, on account of the constant movement, give the instantaneous relief from pain provided by strapping higher up the leg. The patient suffers from a vile combination of cutting pain, irritation, and burning, which is particularly exasperating when, as so often is the case, it is felt in the surrounding skin rather than in the ulcer. These ulcers are called "irritable ulcers" on account of this peculiar pain and possibly, also, the patient's frame of mind. Corlette has recommended a Λ-shaped incision above the ulcer to render it anaesthetic; but this is unwise, because the next ulcer starts in the scar of this incision and is harder to heal on this account. In dealing with these ulcers a very thorough treatment of the veins is necessary, and even the tiny veins around the malleolus should be injected. Features of these ulcers are the slowness with which they form granulations and the constancy with which they are preceded by an ischaemic dead-white patch of skin.

The strapping should be done with the help of a pad of felt and sponge-rubber as shown in Fig. 12, and the ulcer bed may be dusted with pure aspirin or percaine powder. All one's resources are taxed to make these

FIG. 12.—Method of treating malleolar ulcer so that firm pressure will be afforded to the ulcer bed in spite of the prominence of the malleolus.

patients persevere with the treatment; they always want to have the bandages off and be at the ulcer with salves, lotions, and hot fomentations; but, although this activity is mentally soothing, healing is only the longer delayed by the interference with the healing processes. A rest in bed stops all the pain, but this can seldom be afforded.

Disadvantages of Treatment by Adhesive Bandages

Dermatitis should be ignored in its lesser degrees. To abandon an absolutely certain method of healing ulcers because of excoriation of the skin is like giving

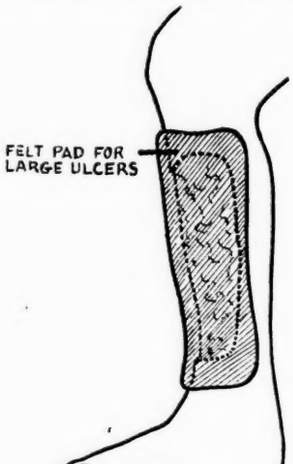

FIG. 13.—Large pad of elephant adhesive felt to ensure even pressure of elastoplast spiral.

up iron treatment for anaemia because of the constipation. It is only the very definite allergic generalizing reactions that make one give up adhesive strapping in favour of another occlusive bandage (ceraban or ichthopaste). The lesser degrees of dermatitis should only make one apply the strapping more tightly. There is no chronic

ulcer of the leg that will not respond to this method: most of them can almost be commanded to heal, but a few require coaxing—malleolar ulcers with pads, larger ulcers with ambulatory skin grafting, and the largest ulcers of all with strapping over elephant plaster to prevent cutting (Fig. 13). Arterial disease of senile or diabetic origin precludes strapping of the whole leg.

Ulcers which are obviously not due to gravity and circulatory imbalance should be separated off for treatment directed to the special origin of the ulcer (syphilis, mycosis, ischaemia, etc.).

Varicose Veins and Military Service

It is wise to have a proper perspective on this subject at the present juncture, and to realize that the case with any signs of complications in the form of oedema, pigmented, eczematous, or ischaemic malleolar patches, ulcer scars, etc., is much more apt to give way under stress than the case which has long cords of varicose veins but no signs of secondary effects. Furthermore, the latter type of case will get a very good result from treatment, whereas the former may have a deeper trouble and not turn out so well. The case with long numerous varicose veins could be regarded as Class II and could be made Class I by treatment, the case with pigmented patches or slight eczema and lesser degrees of oedema Class III, and the case with much oedema, recurrent phlebitis or ulcer, extensive pigmentation and scarring, or active ulcer Class IV.

FEIGNED EPILEPSY IN WARTIME

BY

REDVERS IRONSIDE, M.B., F.R.C.P.

Neurologist, West London Hospital; Physician to Out-patients, Hospital for Nervous Diseases, Maida Vale

In previous major wars certain unwilling conscripts and military misfits have feigned epilepsy with the object of avoiding service. Prisoners of war may also feign epilepsy. It is not unlikely that simulation of epilepsy may be attempted in the present war, and the profession as a whole, and particularly those on medical boards, should be alive to the possibility of fraud when epilepsy is alleged as a bar to military service in those of conscriptive age. An unwary doctor seeing such a patient for the first time and supplying a medical certificate in good faith may all too easily find himself an unsuspecting party to deceit.

Techniques of Simulation

Sham fits produced by a histrionic effort aided by soap in the mouth to make froth and pricking of the gums to draw blood are no longer fashionable. A technique more subtly ingenious and convincing may be adopted which only becomes evident after its regular appearance in a consecutive series of individuals. Convulsant drugs—for example, monobromate of camphor, cardiazol, insulin, etc.—which produce convulsions closely resembling those of epilepsy are too dangerous for use in relatively unskilled hands.

Post-epileptic stupor, however, may be simulated by a full dose of a hypnotic drug by mouth, the clothing and floor on which the individual is found lying having been wetted previously with water or urine. A large enough dose of barbiturate will produce stupor, confusion, pupils which react imperfectly to light, and even an extensor plantar response. An incision made by a confederate on the tongue or lip will heighten the illusion that the patient has had a genuine convulsion. Subconjunctival haemorrhages are less easy to fake, but there is, in fact, no symptom or sign of epilepsy which could not be produced by artifice. To complete the picture an accomplice may supply in considerable detail the entirely fictitious but convincing history of chronic epilepsy in the subject of the alleged "fit."

Case 1: Alleged Post-epileptic Stupor in a Soldier.—A soldier of foreign extraction, aged 21, was seen in his own home in consultation with Dr. A., who had not previously attended him. The patient had been in bed in a state of katatonic stupor for three weeks following an alleged fit on leave. A history of chronic epilepsy since infancy was given, with epilepsy affecting several sibs (two dead of epilepsy in childhood, the others not at home). His Service record was healthy and no details of previous treatment were forthcoming. The day after his admission to hospital, without any treatment, the patient recovered from stupor and remained mentally and physically normal, with normal spinal fluid, for a week. One morning at 5 o'clock the nurse could not rouse him, although no fit had been observed. The previous day he had been visited by a woman, now believed to be a confederate. This second stupor lasted twelve hours. It was subsequently ascertained that a previous attempt to obtain discharge from the Army on compassionate grounds had failed.

It will be evident that such complex simulations may require the co-operation of several individuals. Techniques are not usually thought out separately by individuals, but may be laboriously acquired from an instructor or instructress who is thoroughly familiar with every medical aspect of the real disease and can provide a story which rings so true that it will deceive even the most alert. Sham fits are not commonly simulated before the patient's regular doctor, but before a practitioner who is hurriedly called to see the patient for the first time.

Difficulties in Recognizing True Epilepsy

The relatively constant sequence of events in a true epileptic fit is diagnostic enough when witnessed in its entirety by an experienced observer. Unfortunately the doctor is often largely dependent on the account of an inexperienced eyewitness of the attacks, and he is then accustomed to rely on the veracity of what is told him. It is only occasionally that the examining doctor is fortunate enough to witness a petit mal attack or a major fit.

There are no pathognomonic interparoxysmal symptoms or signs of epilepsy. In taking the history stress will rightly be laid on the story of a lacerated or swollen tongue after the fit, blood on the pillow, incontinence of urine, or subconjunctival haemorrhages. But one should be alive to the possibility that such "unequivocal" signs of an epileptic fit may be simulated or invented by the patient. Examination of an epileptic patient in the interparoxysmal periods often reveals no abnormality. The dull greasy facies epileptica with its poverty of emotional expression does not always exist. Some 30 per cent. of epileptics will show scars on the head, tongue, or limbs, but these are mostly relics of the patient's pre-treatment days. After treatment is begun falling attacks may cause bruising only. Old scars on the tongue are difficult of detection; those on the lips are easier to see, and occur as puckered or depressed areas on the buccal surface of the lips. Burns are commoner in female epileptics who work a considerable part of the day over a cooker or stove. In males they are usually insignificant cigarette burns.

Electro-encephalography shows abnormal tracings in all cases of epilepsy during the fit and immediately afterwards. Direct clinical observation of the fit should supply information of no less value, and in doubtful cases the apparatus or the expert required to interpret the encephalogram might not be available at the time or place of the seizure. This method, however, may prove to be of considerable value in suspicious cases; but further research

is required to elucidate possible abnormalities in the records taken from epileptics between their attacks.

Thus we see that unless an actual fit is observed by the doctor the diagnosis of some cases of true epilepsy may cause considerable perplexity if the history is confused or insufficient.

Differential Diagnosis of Feigned Epilepsy

A simulated post-epileptic stupor will have to be differentiated from several conditions, notably status epilepticus, head injury, and hysteria. Wherever doubt or suspicion exists the patient should be kept under isolated observation in hospital, the skull should be radiographed for fracture, and spinal fluid withdrawn and analysed after estimating its pressure.

If produced by hypnotics a simulated post-epileptic stupor may last for days or weeks, so long as the drug is being administered by the patient's confederate. *True post-epileptic stupor* lasts minutes or hours only. Drug stupors differ from *status epilepticus* in that they are unheralded and unaccompanied by any convulsion or clonic twitchings of the muscles. They can, however, only be diagnosed with certainty by recovering the narcotic from the patient's body. A visible external injury on the head or the presence of any unilateral neurological sign should lead to the suspicion of *intracranial trauma*, and necessitates a full radiological and serological investigation, including spinal manometry. Such conditions as *katatonic stupor* in schizophrenia (its association with fits is extremely rare indeed) and *cerebral cysticercosis* may have to be excluded.

Between their attacks malingerers may simulate a state of imbecility and "dress the part" by omitting to shave or sleep for some days. We know that a few epileptics become demented in the course of their malady, and that in some cases epilepsy is engrafted on an imperfectly developed brain. The apparent imbecility of the malingerer may be revealed by some discrepancy or incompatibility apparent to the trained observer. For example, a patient with a seemingly idiot mentality will find his way to the doctor alone and assert that he dressed himself unaided that morning. Some incompatible symptoms may be introduced redundantly—for example, amnesia, which is so easy to simulate. Amnesia for past events is not a symptom of the mentally retarded epileptic.

Case 2: Apparent Imbecility in an Alleged Epileptic.—A smartly dressed young man, aged 24, on the eve of conscription attended hospital with a note from Dr. B., who had not seen the patient before. A temporary address was given; frequent fits since childhood were alleged, but no details of previous treatment could be ascertained. The patient appeared not to comprehend fully what was said to him; there was amnesia for past events; he answered in monosyllables; and his apparent mentality was that of an imbecile. He mentioned that he had dressed himself unaided that morning, and he agreed that he had travelled some ten miles to hospital alone. A certificate was refused. Neither Dr. B. nor the hospital has seen the man again.

Hysteria or Malingering?

The diagnosis from hysteria may prove exceedingly difficult. The hysteric as well as the malingerer may have a fit just before being called for medical examination or when he is faced with some unpleasant duty. It should be remembered that hysterical symptoms may occur in epilepsy.

There are all gradations between hysteria and malingering: the malingerer, however, is deliberately attempting to deceive others, while the hysteric is not. The demonstration of trickery may depend upon finding (1) contradictions in the patient's own story; (2) discrepancies between his story and a separately obtained story from a relation or friend; or (3) a clumsy refusal of treatment or attempt to suppress details of previous treatment.

Suspicious Circumstances

The suspicion of malingering will be aroused by certain "suspicious circumstances" relevant to the patient himself, and by certain clinical anomalies in the history revealed by careful case-taking. Doubts may occur in the case of soldiers (1) if the patient was not certainly known to be epileptic in pre-war days; (2) if a man with a previously healthy record of service develops a fit on leave; or in the case of civilian males of conscriptive age (3) if the patient has temporarily changed his address to be near a doctor whom he has not seen before.

Case 3: Unexplained Change of Address in an Alleged Epileptic Conscript.—A recently married man aged 24 came with a letter from Dr. C. He gave a temporary address in a town near London, admitting that his home was in London. Dr. C. had seen the patient for the first time the previous day when he was in a stupor alleged to be post-epileptic. No fit had been observed, but his clothes appeared to have been wetted. No cogent reason could be given for the sudden temporary change of address. The usual story of familial epilepsy and frequent fits since childhood was ascertained. The patient was accompanied not by his wife, who was in fact in London, but by the same woman referred to in Case 1, at whose request the patient had been sent for a certificate and who glibly furnished most of the history.

Case-taking

The suspect must be examined apart from his relatives and friends, and the separate stories compared for contradictions and discrepancies. Relatives or friends must never be present during the examination of the patient, and in all cases a separate history should be obtained from some eyewitness of the fit or from someone familiar with the patient's previous history. Especial care must be taken to avoid putting leading questions during case-taking—for example, never to ask, "Did he snore as he was coming round?"; but rather to say, "What did his breathing sound like as he was coming round?"

In case-taking the following points may suggest the possibility of simulation:

(1) The same history occurring in an epidemic of similar cases: epilepsy being so amazingly wide and diverse in its manifestations in different individuals.

(2) Contradictions in the patient's own story, if he can give one; or discrepancies between the patient's story and that of a relative or eyewitness.

(3) Over-elaboration of the history. The history may be embellished with a story of familial epilepsy or of deaths from epilepsy among sibs. Familial epilepsy is extremely rare; probably it occurs in not more than 20 per cent. A family history of migraine, on the other hand, is common in organic epilepsy. Death from epilepsy is extremely rare indeed. When it occurs it is usually in those over 60 years of age.

(4) Suppression (through amnesia or some other irrelevant reason) of details of previous medical treatment. The alleged epileptic may assert that he could never take the medicine "because it had a salty taste," or that he refused to go to a doctor because of some personal bias against the profession. Most epileptics, however, prefer to take medicine, distasteful though it be, rather than have attacks.

(5) A history of constant steady employment in a patient who is alleged to have frequent severe attacks is suspicious. One of the characteristics of the epileptic is that he is constantly losing his job because of the fits.

Case 4.—Anomalous History in an Alleged Epileptic.—A civilian, aged 24, on the eve of conscription presented himself for a certificate of unfitness through epilepsy with Dr. D., who had not previously attended the patient. The man's appearance was haggard and unkempt. Although it was alleged that he had had frequent severe fits since childhood he had been in constant steady employment, and he asserted that he would never have treatment from a doctor

because he did not like the taste of medicine. There was marked amnesia for past events. He was advised to put himself under the care of Dr. D. for further observation without treatment; a certificate was refused and Dr. D. was warned. Three days later Dr. D. rang up to say that the man had been found unconscious after an alleged fit by yet another new doctor in a town near London, and a certificate of unfitness to attend a medical board had been given.

Medical Certificates of Unfitness

The whole question of the supplying of medical certificates of unfitness for service or unfitness to attend medical boards in persons of conscriptive age is one which requires great consideration. In all cases where the doctor has no certain knowledge that the patient was truly epileptic in the pre-war period the greatest caution should be exercised. When doubt exists it is better to withhold any certificate, and instead to ask the examining medical officer to get into personal touch with the patient's usual medical practitioner.

IMPERIAL CANCER RESEARCH FUND

The annual general meeting of the governors of the Imperial Cancer Research Fund was held at the Royal College of Surgeons on April 17, with Sir HUMPHRY ROLLESTON in the chair. Lord Halifax was re-elected president, Sir Holburt Waring treasurer, and four additional members of council were approved—namely, Professors H. R. Dean, H. W. Florey, C. A. Lovatt Evans, and John Beattie.

Mr. HUGH LETT, P.R.C.S., made a statement on the work of the Fund, which, he said, was started in 1902 for the purpose of carrying out fundamental research on the nature and causes of cancer. The scientific staff might have devoted themselves to anatomical studies with a view to helping surgeons to devise operations, or perhaps to comparing the microscopical characters of malignant tumours. But such lines of investigation were limited; they did not lead directly to the essence of the problem. Therefore the staff had been encouraged to adopt a wider view and to make cancer research a general biological investigation. This policy had placed the Fund in a high position scientifically which was recognized in every civilized country.

One great advance was the final determination by Dr. Bashford and Dr. Murray, working under the auspices of the Fund, that cancer was at first purely a local condition originating in groups of cells. They had shown that if the growth could be operated upon in its early stages while it was still small and localized there was every reason to hope that it would be removed entirely and the patient would be cured. Work done by Dr. Bashford had also shown that cancer was not increasing at the alarming rate suggested by the Registrar-General's returns, but that the apparent increase was due to improved diagnosis. These and other discoveries were now past history, but it was well to recognize that they formed a central part of our knowledge. Cancer research had expanded beyond all expectation. It had been shown that cancer could be caused by the application of certain pure chemical substances or by physical agents, and therefore some forms could now be prevented if appropriate precautions were taken. A recent development was the evidence that hormones might be a decisive factor in the genesis of cancer of the breast, and the story of the research which led to our present knowledge was a perfect example of international co-operation in scientific work. Further investigations into this subject were being actively carried on in the Fund's laboratories.

In conclusion Mr. Lett touched on the work of Peyton Rous on fowl tumours and the subsequent description of more than fifty virus tumours. Dr. Gye, the present director, bore an honoured name in this research. The Royal Colleges, as founders of the Fund, had much cause for satisfaction in the work which had been accomplished in its laboratories, and with this satisfaction was mingled a deep appreciation of the ability and devotion of the scientific staff.

Reports of Societies

CHEMOTHERAPY IN SURGERY

At the meeting of the Section of Surgery of the Royal Society of Medicine on April 17, Mr. ZACHARY COPE presiding, the subject of discussion was "Chemotherapy in Surgery."

Mr. NORMAN C. LAKE said that he believed the sulphonamide group of compounds to be specific in their action, in some cases remarkably so. Sulphanilamide was effective in surgical gonococcal infections; he gave examples from his experience. The results in staphylococcal infections were less remarkable. In acute osteomyelitis both sulphanilamide and sulphapyridine had proved of little value, but uleron had been a powerful remedy in cases in which there could be no doubt about the diagnosis. The signs and symptoms usually disappeared within three or four days. In general each compound appeared to have a special activity against certain types of organisms, and much less or no action against others. Nevertheless, the specific action was not absolute, and did not always run along parallel lines for different parts of the body. No general answer could be given to the question whether they were sufficiently reliable to replace other long-established methods of treatment. There were some awkward pitfalls to which over-enthusiasm might lead. In dealing with streptococcal infections particular caution was necessary because they were prone to terminate by crisis at the end of a few days. Nor must the results obtainable with antitoxic sera be overlooked; they were sometimes brilliant, and in many cases could replace completely the older forms of treatment. As to any deleterious effects of the chemotherapeutic products, minor complaints such as headache, nausea, and general lassitude had been frequently observed. Some cases, though not personally known to him, had developed agranulocytosis. Scientifically these products should be given for the treatment of appropriate infections only after bacteriological proof of their nature, but if this principle were strictly adhered to the treatment would be denied to many cases in which it would be of the utmost value. If bacteriological proof could be obtained easily and rapidly this should be done, but in other cases a careful clinical diagnosis should be sufficient to warrant a trial of chemotherapy. Mr. Lake discussed the use of chemotherapy in secondary infections associated with discharging sinuses, which often showed great improvement under such treatment. He had used rubiazol in several cases of diverticulitis in which there were recurring attacks of inflammation of less severe character, and had gained the impression that this was a valuable treatment. It had been authoritatively stated that chemotherapy had little prophylactic value, the presence of organisms being necessary for the development of the powers of these substances, but he had always found it difficult to reconcile this view with clinical experience, and he had not hesitated to use the products in pre-operative administration.

Contraindications

Mr. A. J. GARDHAM said that knowledge of the mode of action of the sulphonamide group of remedies was now reasonably precise. It was known, within limits, what blood concentration was necessary to allow them to act and what time must be allowed for this concentration to be attained and stabilized. Even when the drug was employed empirically the dividing line between success and failure was fairly sharply defined. So long as the empirical use of sulphonamides was justifiable, the first essential for the practising surgeon was to have clearly in mind the febrile diseases in which the drug should not be used. He did not give these drugs if he thought there was a localized collection of pus and was not quite certain where the collection was. He did not like using the drugs in a case in which there was renal impairment; this generally excluded the use of the sulphonamides in the post-operative complications of prostatectomy, but not in most *B. coli* infections. He believed it was quite wrong to use the

drugs in cases, such as osteomyelitis, in which the invading organisms almost certainly belonged to a group on which the drug had little or no effect.

Mr. P. B. ASCROFT spoke on chemotherapy in peritonitis chiefly due to appendicitis, though what he said was also largely applicable to most forms of acute peritonitis. *A priori*, the case for the use of chemotherapy in peritonitis from appendicitis appeared to be sound. Published reports of chemotherapy in appendicular peritonitis were encouraging. After quoting cases from the literature, he reported a personal series of twenty-three cases of spreading peritonitis without a death. Of this number, thirteen received early and full treatment. As for reactions, apart from blueness, nausea, depression, and headache, which were relatively frequent, he had observed only one severe reaction, accompanied by scarlatiniform rash and fever, which developed on the sixth day. Chemotherapy had no place in the treatment of acute appendicitis *per se*. Mr. ZACHARY COPE said that the treatment by sulphonamide preparations of cases of peritonitis was exceedingly interesting. He had followed it in some cases but not as a routine; he thought it well to bear it in mind in appendicitis when not suppurative.

Professor ALEXANDER FLEMING referred to the varied sensitivity of different organisms. In staphylococcal infections these drugs sometimes seemed to succeed, and sometimes they did not. The sensitivity of most of the staphylococci to these drugs was just about at the maximum concentration of the blood; there was no margin. He described some tests designed to show whether the particular organism isolated from a patient was sensitive. Mr. W. H. OGILVIE said that his own impression from the experimental work was that the prophylactic action of these drugs was most efficient. So far as one could see, the dose that would be effective in these conditions was very much smaller than the dose later needed for treatment. Mr. G. C. DORLING mentioned four cases of abdominal actinomycosis in which sulphonamide compounds had been given (prontosil album in one case and sulphanilamide in the others), and only one death had occurred. In two of the cases there was marked improvement, and in the other the clinical result was less certain.

LABORATORY DIAGNOSIS OF BACILLARY DYSENTERY

At a meeting of the Royal Society of Tropical Medicine and Hygiene on March 28, Sir RICKARD CHRISTOPHERS presiding, the subject of discussion was acute bacillary dysentery.

Lieutenant-Colonel J. S. K. BOYD said that in acute bacillary dysentery laboratory diagnosis was made by isolating the causative organism from the faeces. The specimen must be obtained as early as possible in the disease and must either be absolutely fresh or be preserved in a slightly alkaline (*p*H 8) 30 per cent. solution of glycerin in saline. A provisional diagnosis could usually be made from the microscopical characters of the mucus. The bacillus was isolated by plating mucus on McConkey's medium or litmus-lactose taurocholate agar, and was identified by biochemical and serological tests. Several new types of dysentery bacilli had recently been described. It was difficult to apply Koch's postulates to organisms of this kind, but good presumptive evidence of pathogenicity was afforded if the organisms were present only in the early acute stages of the disease and disappeared on recovery, if they were not to be found in the faeces of normal subjects, and if agglutinins for the specific antigen of the bacillus appeared in the patient's serum. Two main groups were defined by the fermentation of mannitol. The non-mannitol fermenters included *B. dysenteriae* Shiga and *B. dysenteriae* Schmitz, which possessed distinctive specific antigens and could be identified by a slide agglutination test. Mannitol fermenters were divided into two subgroups by their action on lactose and saccharose. The only known pathogenic member of the first subgroup, *B. dysenteriae* Sonne, was a late fermenter of these substances, and possessed a distinctive antigen. The second subgroup, comprising types which did not ferment lactose and saccharose, had hitherto been known as the Flexner group. Andrewes and Inman had described five races in this subgroup, which they had named V, W, Y, X, and Z. In the last twenty years several other races, not included in this series, had been identified. The true Flexner races shared a common group antigen, and it was proposed that the name *B. dysenteriae* Flexner be reserved for the races so endowed, of which there were at least six, while three other races, relatively common, not possessed of the Flexner group antigen, should be named *B. dysenteriae* India. (Later in the discussion General MARRIAN PERRY suggested that the strains in this latter group, the pathogenicity of which had been proved as a result of Colonel Boyd's work, should be known as *B. dysenteriae* Boyd.)

Efficacy of Anti-Shiga Serum

Dr. R. A. O'BRIEN said that most authorities felt that anti-Shiga serum should be used in dysentery known to be caused by Shiga's bacillus, though few were fully satisfied with the evidence for its efficacy. Laboratory results strongly indicated that the serum should be efficient clinically. Probably most of the serum used during the first world war contained about 100 international units per c.cm.; to-day serum could be made available containing 5,000 units per c.cm., and by concentration presumably limited supplies of serum containing 10,000 to 15,000 units per c.cm. could be produced. Pope's process of partial digestion should provide serum little liable to cause rash and serum sickness. The "anti-Flexner-Sonne" sera could not be satisfactorily titrated, and the clinical evidence for their usefulness was weak. Dr. Buttle had obtained with sulphanilamide high protection in mice against Flexner and Sonne cultures, and even though these drugs had not proved highly successful in typhoid fever they might do so in bacillary dysentery, with its shorter incubation. Prophylactic vaccination was relatively untried. Formalinization reduced the irritant properties of vaccine used for horse immunization, and with Shiga formol toxoid exceptionally potent sera had been obtained. The result held out high hope that formol toxoid might be manufactured suitable for the protection of personnel exposed to high risk of Shiga infection. Much dysentery of the Flexner type occurred in mental hospitals, where vaccines were largely used, though completely satisfactory evidence for their efficacy was not forthcoming.

Dr. C. R. AMIES could not accept the conclusion of Topley and Wilson that in practice the value of Shiga serum was not convincing. The results claimed in the literature were so widely varying that a guarded opinion should be given. Many clinicians spoke in favourable terms of Shiga antitoxin, and during the last twenty years there had been a steady demand for it. There were technical difficulties in its titration, but the use of serum produced by reputable laboratories should ensure that a potent product was being injected. The international unit was attempted in 1927, yet so far clinicians did not seem to have decided what was the optimum dosage in terms of units to be given. One of the most important causes of failure was lateness in administration. Antitoxin could combine with and neutralize circulating toxin; it could not have effect on toxin already anchored to susceptible cells. Early administration was as important in dysentery as it was in diphtheria, and the withholding of serum for several days was as reprehensible in the one disease as in the other. It might seem a counsel of perfection to say that a potent serum should be given during the first few hours after the onset of symptoms, but this should be possible during an epidemic of dysentery which had already been recognized as due to the Shiga organism.

Classification and Designation of Organisms

Major-General H. MARRIAN PERRY applauded Colonel Boyd's many years' work in India on the mannitol-fermenting group of dysentery organisms, and while he agreed with the proposed classification into organisms possessing the Flexner group antigen and those devoid of that antigen, he felt that the designation for the latter type—*B. dysenteriae* India—was not a happy one, as the organisms might later prove to be ubiquitous when the appropriate agglutinizing sera were

available and came into general use. He therefore, as already mentioned, suggested the designation *B. dysenteriae* Boyd.

Dr. P. H. MANSON-BAHR agreed that Colonel Boyd's classification of the mannitol-fermenting group was much more sound and practical than previous classifications. Shiga's organism still remained the most important and most toxic member of the dysentery group, but *B. dysenteriae* Schmitz and *B. dysenteriae* Sonne had also now been duly "canonized." In Professor Gantenberg's account of an outbreak of bacillary dysentery following the German invasion of Poland the value of early and massive injections of anti-dysenteric serum in toxic cases was emphasized and the results considered favourable. Indications for serum treatment were (1) definite signs of toxic absorption, (2) stools numbering more than twelve per day and containing a high proportion of blood, and (3) a small running pulse and definite pyrexia. Mild cases of dysentery did not require anti-dysenteric treatment.

Lieutenant-Colonel BOYD, in reply, said that in actual practice outbreaks of one type of dysentery were comparatively uncommon. When dysentery was prevalent all types might occur. Thus specific serum treatment became more difficult, as Shiga serum would act only on cases infected with Shiga's bacillus. He agreed with the necessity for early and specific serum therapy, but the practical difficulty was to identify the Shiga bacillus in a sufficiently short time. Another point was that although Shiga dysentery was undoubtedly the most severe type in adults, Flexner dysentery was extremely fatal in infants, producing a green diarrhoea with mucus containing typical cytological exudate, and death might follow within twenty-four hours.

ANXIETY NEUROSIS

At the meeting of the Medical Society of London on April 15, Mr. ZACHARY COPE presiding, a discussion on anxiety neurosis was opened by Dr. G. W. B. JAMES.

Dr. James recalled that the term "anxiety neurosis" came into medical use in the last war, and had grown so common as almost to replace the "neurasthenia" of the 'nineties. It was becoming a polite portmanteau for almost any mental disorder. Freud set out very clearly the symptoms of neurosis, which included general irritability and an anxious state of expectation, with acute attacks. "Anxiety" as used here was short for "morbid anxiety"; anxiety, to use the word in its general sense, was associated with many conditions of both body and mind, and what might be called normal anxiety was related to rational fears, such as the loss of savings in a tottering business. Anxiety was also seen in cardiac disease and in some states of delirium. These forms of anxiety and many others he did not include in anxiety neurosis. Freud declared the origin of the anxiety of neurosis to be due to sexual excitation without adequate outlet or gratification; thus it was often seen in engaged couples, widows, and married persons who practised coitus interruptus. Dr. James extended this narrow conception to the three groups of inherited behaviour patterns or instincts with which man was endowed—namely, the self-preservation, the sex, and the herd or gregarious instincts.

Dr. James analysed twenty-one cases diagnosed as anxiety neurosis taken from out-patient practice at St. Mary's. There were eleven females and ten males, their ages ranged from 19 to 42, and the origin of their condition was said to be: illness (2), operation (2), accident (3), bereavement (2), unemployment or other economic factor (2), pregnancy and childbirth (3), unknown (7). Eight out of the twenty-one turned out to have underlying sexual difficulties, four to have economic troubles, and two might be regarded as examples of anxiety neurosis associated with the herd instinct, for their condition was a result of the outbreak of war.

Symptoms and Treatment

Among the common symptoms attaching to the condition were palpitation and precordial distress amounting to pain; indigestion, flatulence, constipation, and diarrhoea; capricious appetite, loss of appetite, or ravenous hunger; nausea (common) and vomiting (unusual); shortness of breath and asthma; frequency and urgency of micturition, or retention (less frequent) or even anuria; ejaculatio praecox and dyspareunia; rheumatic pains, backache being the most frequent; almost invariable sweating, sometimes confined to the hands; blushing or local flushing of the face and neck; patches of piebald skin and eczema. Headache was usually complained of, occipital pain, or agonizing pain in the neck. Aural complaints were less frequent than eye complaints, and usually consisted of pressing or throbbing in the ears. Fatigue was a constant but erratic feature of anxiety neurosis; it was a purposive fatigue for certain chosen activities. Early cases always presented sleep disturbances, and the dreams had certain constant features, being either of the horrifying or the frustration kind. Frequent complaint was made of inability to concentrate, forgetfulness, and growing inefficiency at work. Secondary phobias developed, the commonest being the belief that the patient was going to become insane. With some people the feature was a restless desire for occupation or distraction. Relatively few patients went on to a psychosis. Dr. Prideaux of the Ministry of Pensions had informed him that of 350 pensioned anxiety cases dating from the last war only four could be traced as having become psychotic.

Some patients undoubtedly required skilled psychotherapeutic treatment, among them the young adults whose anxiety symptoms were fired by latent homosexual trends. But psychotherapy would never be the real answer to the problem. He computed that there were a million sufferers from anxiety conditions in the British Isles, and obviously the number of psychotherapists would be unequal to the task. The ideal was for every doctor to become his own psychotherapist, remembering that the extended history in such cases called for time, patience, and practice. Alcohol was frequently used by the patient to assuage his anxiety. Dr. James had found such drugs as medinal of use in some cases. He also mentioned the occasional use of convulsive and insulin therapy. Acetylcholine derivatives in anxiety states had been favourably reported on clinically, but while the preparation worked wonders at first, the effect might be temporary. Thyroid was always to be avoided. Any local sepsis should be treated, and symptomatic treatment should never be neglected. The "bottle of medicine" need not be despised.

Discussion

Dr. T. H. HUNT said that vomiting, which Dr. James considered rather unusual in an anxiety patient, was in his experience of an out-patient department rather a frequent symptom. These patients vomited a great deal, and yet were quite well. Many patients at their first attendance were not seriously anxious, but their initial treatment converted them into serious cases, especially if they were told by a doctor that their loss of weight and night sweats might indicate tuberculosis. Dr. MANSON-BAHR referred to the special problem of tropical neurasthenia. It was not uncommon for people on going out to the Tropics to show signs of nervous breakdown, accompanied sometimes by such astonishing behaviour as, in London, would have led to their lodgment in a mental hospital. But on coming home after a short period they resumed their customary respectability. It seemed as if the better equipped the individual physically and mentally the less was he able, on account of previous "pampering," to stand up to tropical conditions. Sir WILLIAM WILLCOX suggested that in these cases of anxiety, if toxic drugs were used regularly over long periods, the result might be to damage the brain. To give barbiturates for any long time was wrong. Mr. ZACHARY COPE said that many of the cases which the surgeon saw should properly be referred to the mental specialist; but his difficulty was that if he so referred all the cases which he thought had a mental or anxiety state, about half a dozen mental specialists would be required at one hospital. Dr. CARLYLE LYON asked what evidence there was that anxiety neurosis was an inherited condition. Dr. JAMES, in reply to the last point, said that the same sort of family history was elicited with anxiety patients as with those having definite psychotic disease—a suicidal uncle, a "peculiar" aunt, a father subject to asthma and a mother to hay fever, and so on. The anxiety character demonstrated itself early in life.

Local News

ENGLAND AND WALES

The Special Case of Tyneside

The Tyneside Social Services (Wartime Bureau) has issued an interesting bulletin on tuberculosis pointing out the special position of the Tyneside urban and semi-urban areas. The death rates for the disease are compared at periods during the last war, and it is clear that Tyneside suffered much more heavily than the rest of the country. Certain parts of the area (Sunderland and Blaydon) showed an increase in the disease between 1913 and 1917 of over 60 per cent. The authors of the bulletin indicate the unenviable position of Tyneside to-day in regard to tuberculosis, and they ask pertinently whether the experience of the last war is likely to be repeated. Another issue of the bulletin deals with the special needs of the school children. The purpose is to show that while London and the south-east, which until the war at all events were relatively prosperous, have a fairly "clean bill" so far as the nutrition of children is concerned, the depressed or "special" areas of the Tyne and Durham are very badly off. The percentage of children whose nutritional state, as ascertained in the routine examinations of the local education authorities, is subnormal or bad was 19.6 in these Tyneside areas in 1938, as against 6.25 in London. (The recently published report of the school medical officer of the L.C.C. for 1938 mentions a figure of 6.60 for London, but of this figure 6.54 represented the subnormal and only 0.06 the bad.) Moreover, it is claimed that while in England and Wales as a whole there has been some improvement in nutrition since 1935, there has been deterioration during these last three years in the Tyne and Durham areas, so that practically 10 per cent. more children were found suffering from subnormal or bad nutrition in 1938 than in 1935. Wartime food rationing adds a fresh incentive to improvement, and the hope is expressed that full-time education may soon be restored if only to ensure medical inspection and nutrition for the children whose need is great. In Newcastle alone in 1938 over 1,100,000 school milk meals were given, but the number of solid school meals—363,318—showed a large decline on the figure for 1934, and the same is true of the neighbouring areas of Gateshead and Felling.

Hospitals after the War

In an address on April 16 to the Annual Court of Governors of the Royal Free Hospital on "Freedom and the Hospitals" Sir Arthur MacNalty, Chief Medical Officer of the Ministry of Health, said that it would ill become him to prophesy concerning the voluntary hospitals at a time when they were all ignorant of the conditions which would prevail after the war. There were, however, some aspects of the situation which might be considered "without prejudice." Since the creation of the Ministry of Health in 1919, and especially since the passing of the Local Government Act ten years later, a great deal of co-ordination of health work had been done, and a yet further step had been taken under the emergency scheme whereby voluntary and State-aided hospitals had been brought together. One could not but feel that the great free organization of voluntary and county and municipal hospitals effected under the emergency afforded an object-lesson for the days to come. We must not see a resumption of the too rigid individualism that formerly prevailed. In the future he hoped there would be a hospital scheme for the whole of England and Wales, to include both voluntary and municipal hospitals, based on national health services and clinics, and with specialist services closely associated with institutional treatment. In most cases it was of little avail to provide merely specialist advice without facilities for treatment at a well-equipped and well-staffed hospital. Hospitals would be more needed than ever after the war. The poorer the country the greater would be the need, for people would be unable to nurse their sick in their own homes. Hospitals were also a form of national economy, for the earlier a patient requiring hospital care was treated, the greater was the prospect of cure in most cases and the less the chance of chronic and intractable disease. For the effective treatment of certain forms of disease also the patient must go to hospital, the only place where appropriate means of diagnosis and treatment were available. Voluntary hospitals found their difficulties increasing, not so much because subscriptions or legacies were falling off but because it was an increasing struggle to provide the costly forms of modern treatment. Only by co-operation in hospital services, regionally and nationally, could these difficulties be overcome and the voluntary principle be safeguarded.

INDIA

Public Health Progress

Sir Alexander Russell, in his last report as Public Health Commissioner with the Government of India, reviews the advances made during his term of office. Outstanding, especially during the last decade, were the greater interest taken by the various Governments and by the educated public in health matters, and the more widespread appreciation of the benefits which derive from organized effort to combat the evils associated with ill-health and suffering. Although the need for permanent health organizations at headquarters and for health staffs in rural as well as urban areas had been recognized as long ago as the middle of last century, little or no effort was made to secure the required staffs. Even in 1919, when the Government of India Act transferred medicine and public health to elected Ministers, very few permanent health officers were to be found except in the larger cities. During the last twenty years considerable progress has been made, and some provinces have now a complete district health staff of health officers, sanitary inspectors, vaccinators, etc., in each district, while some of the more advanced areas are on the way to achieving the ideal of a trained health officer in every municipality. Even in the less advanced areas there is a general desire for urban and rural health staffs. A new organization, the Central Advisory Board of Health, was created in 1937, and has done much useful work in maternity and child welfare, leprosy control, and food adulteration through *ad hoc* expert committees. The Board is also establishing a central bureau to supply information on public health subjects. The Government of India has made two grants to the provinces in recent years for such public health measures as rural water supplies, improved rural sanitation, and anti-malaria operations, as well as for schemes of medical relief, agricultural and animal husbandry, cottage industries, etc. Public health improvements in old and new Delhi during the period were a considerable reduction in the incidence of malaria, improved street sanitation, and an up-to-date sewage purification scheme which should serve as a model to India for many years. Considerable progress has also been made in the nutrition of the people. Studies have been made of the common foodstuffs and of the actual diet, and it has been shown that the common deficiency of vitamin A can be corrected by the use of red palm oil, which is produced in India. As regards medical research, a new specific serum for the diagnosis of true cases of cholera has been obtained, and it is expected that this will facilitate the detection of cholera carriers. The Indian Research Fund Association has arranged training in medical research for a large number of Indian graduates; it is rightly felt that the greater the number equipped for medical research the more sure will be the foundations of public health and the more scientific the practice of preventive medicine.

Dr. George W. Corner, professor of anatomy in the University of Rochester (New York) since 1924, has been appointed director of the Department of Embryology, Carnegie Institute, Washington, D.C., in succession to Dr. George Streeter.

Correspondence

Owing to the restricted supply of paper the space devoted to correspondence must be curtailed. A number of letters received for publication have therefore had to be held over.

Cerebrospinal Fever

SIR,—During the severe epidemic of cerebrospinal fever in 1907-8 a large number of cases occurred in Belfast, and during that time we devised an application of Sir A. E. Wright's opsonic technique for the laboratory diagnosis of this infection. We found with this technique that the positive preparations showed marked agglutination and high phagocytosis, while in the control films the cocci were evenly distributed and there was little phagocytosis, so that definite and reliable results were obtained when the patient had been ill for three or four days. This method gave positive findings in 98 per cent. of several hundreds of cases of the disease examined during the epidemic. By means of this test a number of cases of meningitis not due to the meningococcus could be definitely excluded, and these negative findings were confirmed in a number of instances by post-mortem examination, as sera from cases infected with other micro-organisms or sera from healthy individuals never gave this reaction.

During the present limited epidemic in Belfast one of us has reapplied this test to the diagnosis of the disease and to determine the type of the infecting coccus. We are indebted to Dr. Kane of the Purdysburn Fever Hospital for a number of specimens of blood from infected cases that had been treated with sulphapyridine, and to Dr. Norman Graham for strains of meningococci recently isolated from the cerebrospinal fluid in the laboratory at the Royal Victoria Hospital. These recent results have fully confirmed our previous findings in 1907, and have shown that this reaction is almost invariably present in this form of meningitis and does not seem to be prevented by treatment with sulphapyridine (M & B 693). The cases examined up to the present have all belonged to Type I, and the cocci isolated from cases of meningitis here have all belonged to this type.

The points of interest in connexion with this reaction are (1) its great value in the diagnosis of cases of meningitis; (2) the fact that this reaction occurs in cases treated by sulphapyridine (and this seems to support the view of Fleming and others that the action of this drug is bacteriostatic and that the defences of the tissues are also necessary for the cure of the disease); (3) this method has only differentiated two types of cerebrospinal fever and has not confirmed Gordon's classification into four types.

Those interested in the diagnosis of cerebrospinal fever will find full details of this technique in the following articles: *Lancet*, May 4, 1907; *British Medical Journal*, November 16, 1907; *Journal of the Royal Sanitary Institute*, 1911, **32**, No. 9. We regret that all our reprints are exhausted.—We are, etc.,

Royal Victoria Hospital, Belfast, April 18.

THOMAS HOUSTON.
J. C. RANKIN.

Rash with Undulant Fever

SIR,—I have read with the greatest interest the account by G. W. Elkington, G. S. Wilson, Joan Taylor, and F. Fulton in your issue of March 23 (p. 477) of an epidemic of undulant fever in a boys' school due to drinking raw milk. This account raises many interesting points, but there is one in particular to which I would call attention, as it is seldom referred to in accounts of cases of this disease—namely, the presence of papular or urticarial rashes in some of the cases.

On examining my records of 494 cases of endemic origin in England and Wales I find that the presence of a rash was reported in only thirty-three. The particulars were as follows:

Rash	No. of Cases	Distribution of Rash
"Rose spots" ..	8	Abdomen (5); abdomen and thorax (1); unknown distribution (2)
Red papular ..	5	Body and limbs (4); unknown distribution (1)
Erythema	3	Face, trunk, and limbs (2); unknown distribution (1)
Macular	2*	Back and abdomen (1); abdomen and elsewhere (1)
Punctate erythema ..	2	Thorax and upper arms (1); unknown distribution (1)
Urticaria	2	Chin and round mouth (1); all over body (1)
Petechiae	2	Body (1); unknown distribution (1)
"Small," "very fine"	2	Back (1); unknown distribution (1)
Purpura	1	Lower extremities
Not specified ..	7	

* The case with a macular eruption on the abdomen and elsewhere had a papular eruption as well and is therefore entered also under the "red papular" cases.

I notice that in Huddleson's new book, *Brucellosis in Man and Animals*, in the clinical section contributed by A. V. Hardy, it is said: "There are no specific rashes in brucellosis, the so-called Mediterranean exanthematic fever having no connexion whatever with this disease. In very severe cases one may see petechiae and even extensive ecchymoses. Scarlatiniform rashes have been described but they are very rare and may be due to administration of such drugs as quinine, hexamine, and barbituric acid derivatives. Sudamina are common, especially in summer, and boils may appear during convalescence."

Custer (1930) described three Swiss cases in which there was a rash, the first having transient red papules; the second red or reddish-brown papules the size of a pin's head on the forearms, hands, cheeks, sides of the neck, extensor aspects of the forearms, the backs of the hands, chest, back, extensor aspects of the legs, and dorsal aspects of the feet; the third having a similar rash to the second but with more erythema, and the distribution being under the chin, in the axillae, and on the flexor aspects of the upper arm, the inner sides of the thighs, and the backs of the feet. MacArthur and Wigmore (1930) have described a red papular rash which appeared in the fifth relapse of a case of undulant fever.

Fairweather (1932) has described a case in which a considerable variety of rashes occurred in the same patient. These included colourless raised spots on the backs of the hands lasting for two to three days and with no irritation, a few red flat itching spots on the abdomen, and a red rash on the feet, front of the leg, both buttocks, the back of the right arm and elbow, the neck below the mandible, the soles of the feet and the palms of the hands, and between the fingers. Round the joints this rash appeared as big red blotches, but elsewhere as reddish spots about the size of a lentil, slightly raised, and disappearing on pressure.

J. Smith (1932) described a series of cases in North-East Scotland among which was one with a slight urticarial rash, another with a macular eruption of the upper chest and neck, and a third with a profuse macular eruption of the skin and mucous membranes of the mouth and throat. Jewell (1931) has described raised spots on the abdomen and thorax resembling the well-known enteric rash. Nagel (1931) has described rashes in four Swiss cases, including a macular rash (red to deep purple in colour) on both forearms, the neck, and the lower part of the face; a papular rash on both forearms in another case; and purple petechiae on the lower legs in another case. Molinelli, Miyara, and Basso (1934) have described rashes in a number of cases in the Argentine. These rashes were almost always generalized, and were either morbilliform followed by desquamation, punctate erythema, or purpura, the latter having, in their experience, a grave prognosis.

As regards prognosis, it is notable that only two cases in my series which had a rash ended fatally, and in one of these unfortunately no details are available as to the nature or distribution of the rash, but in the other purpura was present over the lower extremities. In the case, however, in which the nature of the rash is unknown epistaxis occurred,

and in two other fatal cases there were intestinal haemorrhages. In the remaining nine fatal cases there were no haemorrhagic symptoms.—I am, etc.,

London, S.W.1, April 10. W. DALRYMPLE-CHAMPNEYS.

REFERENCES

Custer, H. (1930). *Schweiz. med. Wschr.*, **60**, 264.
Fairweather, D. S. (1932). *Lancet*, **1**, 613.
Jewell, N. P. (1931). *J. trop. Med. Hyg.*, **34**, 261.
MacArthur, W. P., and Wigmore, J. B. A. (1930). *British Medical Journal*, **1**, 858.
Molinelli, E. A., Miyara, S., and Basso, G. (1934). *Dia. Med.*, **7**, 207.
Nagel, W. (1931). *Schweiz. med. Wschr.*, **61**, 970.
Smith, J. (1932). *Quart. J. Med.*, **1**, 303.

Treatment of Jaw Injuries

SIR,—In reply to Colonel Stobie's letter in the *Journal* of April 13 (p. 634), I am indebted to him for this opportunity to supplement my short paper on the treatment and primary suture of face wounds. The object of my paper was to advocate the repair and restoration of face and jaw injuries to the normal by the earliest possible operative treatment. It is evident, and it goes without saying, that the surgeon would restore and repair the deeper structures first, before closing the wound. It is a surgical axiom that the restoration of function in bone or other injuries is of the first and greatest importance, and the aesthetic result is a comparatively minor consideration. In order to encourage surgeons to tackle these facial injuries at once and not to pass them on to the base hospital I indicated inadequately what could be done by any surgeon who has not had the highly expert training of a dental surgeon or specialist in injuries of the jaws and teeth. By loose fragments I meant unattached splinters lying in the wound which would be expectorated by the patient or extruded by suppuration at a later date. I cannot imagine any surgeon increasing the injury by removing the larger, useful, and attached fragments or teeth. The surgeon would manipulate and replace the larger fragments, and if dental splints were unobtainable he would endeavour to fix the fragments temporarily by wiring or ligaturing the teeth together.

I admit that I did not give sufficient details, and particularly those concerning the extraction of teeth in the line of fracture. If the fracture is through the socket of a tooth, exposing the root, and if the tooth is loose and displaced, it is probably of little value for the anchorage of a dental splint. During the last war I saw several cases where the retention of such a tooth delayed union, and after extraction the jaw united. I heard Sir Frank Colyer frequently and forcibly express the opinion that such teeth should have been extracted. I am opposed to leaving a wound open with the hope that it will facilitate dental treatment. When a wound involving the cavity of the mouth is left open Nature makes strenuous efforts to close it by contraction, puckering, and scarring, and it is surprising how rapidly this contraction proceeds. The number of cases in which the dental surgeon cannot deal with the jaws and the alveolus through the mouth must be extremely small. Even then, if such cases arise they can be treated at a later date by a deliberately planned external operation. I have not seen any case of primary suture carried out intelligently which interfered with dental treatment. I do not know what Colonel Stobie means by haphazard primary suture, and I suspect that he has not taken into consideration the extent and severity of the injury. No intelligent surgeon, for instance, would decrease the size of the orifice of the mouth or inflict any such detrimental treatment.

I am in full agreement with Colonel Stobie that the surgeon should have the complete co-operation of the dental surgeon in the treatment of these cases. I would urge any surgeon to make full use of this essential and valuable co-operation. At the C.C.S. where I worked there was a dental surgeon who was fully occupied by routine dental treatment, and his laboratory equipment for mechanical work was insufficient. When we were very busy receiving wounded during a "strafe" he was roped in to help with any and everything. In spite of this he gave me valuable help on many occasions. At Rouen there was an efficiently equipped dental department. This department did excellent and skilful splinting and treatment of jaw injuries. I would advocate most strongly that a dental surgeon experienced in jaw injuries and with an efficient mechanical laboratory should be attached to a C.C.S. for head injuries, and, if possible, his orderly should be a dental mechanic. I have the greatest respect for Colonel Stobie's organizing ability and judgment. It is good news to hear that the immediate treatment of injuries of the jaws by the collaboration of the surgeon and dental surgeon is available.—I am, etc.,

London, W.1, April 16. EDWARD D. D. DAVIS.

The Suprapineal Arachnoid Body

SIR,—It is evident from their letter in your issue of April 20 (p. 668) that Dr. R. J. Gladstone and Mr. C. P. G. Wakeley have misread the short descriptive account of the "suprapineal arachnoid body" which I recently contributed to this *Journal* (March 23, p. 476). A reference to this account will show that I referred to the structure of this granulation as being "quite peculiar," *with particular regard to its contained blood vessels.* Also, the implication was nowhere made that the nervus conarii plays a part in the control of the circulation in these blood vessels. Indeed, my own opinion is that quite probably it has nothing to do with this function. Lastly, I was careful to state "the inference that this vascular arachnoidal structure functions as a valvular mechanism must be accepted as tentative only."—I am, etc.,

Oxford, April 22. W. E. LE GROS CLARK.

The Mechanics of Diabetes

SIR,—The impressive leading article in the *Journal* of March 2 (p. 351) must deeply interest both the theorists and the practitioners. By your report of Professor Himsworth's Goulstonian Lectures your readers get a clear synopsis of his conception proved in a long experience and of his theories based on many experiments. The essential points in Himsworth's system—the diminished ability of the tissues to utilize glucose caused by deficiency of or insensitivity to insulin, the part played by the blood-sugar level, its regulation and compensating activity in correlation with the organs which govern the mobilization of the glucose—the liver and the hypophysis—all these are a valuable guide to the practitioner in finding his way in this complicated problem.

The advances in science have rather complicated the problem of diabetes, the pathogenesis of which seemed to be completely elucidated by the fundamental experiments of Mering and Minkowsky, which became so beneficial to the clinic by the splendid discovery at Toronto. But soon former conceptions reappeared which had been in the background in the period exclusively dominated by the pancreas as originator and helper. In his system Himsworth had put the main stress on Houssay's work and the experiments of Young, which he augmented by his own research and theories. With their physiological foundation they remind us of old well-known facts, such as glycosuria and real diabetes in acromegaly, and still more of the connexions between the thyroid gland and Graves's disease and diabetes, not forgetting the remarkable part played in the diabetic syndrome by the adrenal system.

The *piqûre* of Claude Bernard already points to the adrenal glands, which are stimulated through the sympathetic nerve and force the liver to a precipitate mobilization of glycogen. Adrenaline is a permanent actor in regulating the blood-sugar pressure. The hypoglycaemia in the fasting state produced by the endogenous insulin is the adequate stimulus for the antagonist of the pancreas—the suprarenal gland—which balances the blood-sugar regulation. The suprarenal gland is evidently the mediator in the course of influences which act on the liver and pancreas and result in promoting or lowering the sugar and carbohydrate metabolism. Just as the "Houssay effect" and Young's experiments are inseparable from the function of the adrenal system, so the adrenal cortex has been recently recognized as co-operating in metabolism of carbohydrate and fat which takes place in the liver. It helps to utilize the carbohydrate by production of the vitamin B. In like manner, as the islets of Langerhans can be destroyed

as an after-effect of the permanent irritation resulting from the anterior pituitary gland, so the suprarenal gland shows serious organic lesions which the anatomist Poll observed not only in experimental but also in a pronounced form in human diabetes. The anterior pituitary gland alone produces nearly a dozen "hormones," and in connexion with other subordinate endocrines it governs several different physiological functions. It is no centre itself, but probably merely a junction dominated by special centres in the brain: the diencephalon, the subthalamic region, the vegetative centres.

These remarks throw light on the network of the endocrine system and its complicated action, at the same time synergetic and antagonistic. Are we right in joining one distinct effect exclusively to one link of the chain? One of the many controversies in the pathology of diabetes is the acknowledged observation post mortem of a pancreas with quite intact islets in chronic diabetics. I confirmed this condition in the year 1928 in describing a special type of diabetes —"liver diabetes." Its clinical symptoms were not different from the well-known diabetic syndrome, but at necropsy I found the pancreas quite intact while the cellular structure of the liver was gravely affected.—I am, etc.,

GUSTAV SINGER,
Emeritus Professor, Vienna University.

Sanderstead, April 11.

Deformities of the Nails

SIR,—I was surprised to find that Mr. S. T. Irwin, in his useful article on deformities of the nails (*Journal*, April 13, p. 624), did not comment upon an operation for the relief of onyxis designed by R. W. Bartlett. The latter writer denies that the nail "grows in"; he claims, on the contrary, that compression of the soft tissues against the nail edge is the sole cause of ulceration and infection. His treatment therefore consists in removing a deep elliptical wedge of tissue from the inner side of the toe and in apposing the margins of the wound by sutures. The operation is conducted in an uninfected field, and as healing occurs the lateral fold is drawn well away from the side and angle of the nail. This simple measure so often proves successful among patients with little time to look after their feet that it can confidently be recommended to practitioners who, like myself, find difficulty in effectively removing part of the nail matrix.

Mr. Irwin is alive to the danger of rapidly extending infective processes in cases of onyxis, for he mentions the risks of phalangeal necrosis and acute lymphangitis. Yet in his paragraph on anaesthesia he describes without qualification the injection of novocain into "the skin and subcutaneous tissues around the edge of the nail." I have had two cases referred to me after operation in which this very procedure, carried out in the presence of sepsis, produced in the first instance cellulitis of the foot and ankle, whilst amputation of the great toe eventually proved necessary in the second case. If the patient refuses to rest until evidence of suppuration has completely subsided I always recommend gas and oxygen in preference to local anaesthesia.—I am, etc.,

Swansea, April 15. C. J. CELLAN-JONES.

Safe Obstetrics

SIR,—Dr. W. H. F. Oxley in his letter (*Journal*, April 20, p. 669) rightly praises the successful work of the Croydon County Borough Maternity Service. He will be interested to know that another county borough, Rochdale, in which an intensive effort to improve the maternity service was commenced in 1931, with complete co-operation between municipal and private practitioner activities as one of the main features, has achieved very creditable results. The average maternal mortality rates for the seven years 1925 to 1931 and 1932 to 1939 were 8.5 and 3.5 respectively.

They had every expectation of having a completely clear year in 1939, but at the last moment one equivocal case had to be counted as a maternal death. There was no material difference in general sanitary or financial conditions in the town during the two periods, and the results confirm the remarks made in a leading article in the *Journal* of March 30, 1935, p. 653): "Oxley, Phillips, and Young believe that the example set by Rochdale is of great value in pointing to the benefits to be expected from a regional attack on the general problem of maternal mortality. . . . They believe that with the knowledge thus gained and with the willing co-operation of all concerned the most effective means would be found for devising measures for dealing with the serious position of the maternity records of many areas in this country." The medical officer of health, Dr. Innes, his staff, and the practitioners and midwives of the town deserve congratulations on a very fine achievement.—I am, etc.,

London, S.E.3, April 19. ANDREW TOPPING, M.D.

Cause of the Functional Insanities

SIR,—Dr. T. C. Graves (*Journal*, April 13, p. 608) deserves all credit for his long and single-hearted devotion to the cause of scientific research in mental disease. But when he tells us that he has found the cause, and the "Mother of Causes," one wonders whether he is not going too far in one direction.

The question of the importance of sepsis in mental and other illnesses is a matter of large-scale investigation with control groups. When it comes to the question of neurosis, the experience of "medical psychology" must count for something. It is indeed disconcerting to the psychotherapist who is not monocular in his outlook to be handed cases for psychological treatment and to find an indication of sepsis that has not received adequate investigation—because sepsis may be a factor in the precipitation and continuance of the condition, and a hindrance, to say the least, to psychotherapy. But there are many cases in which sepsis is not present and which respond to pure psychotherapy, and others where treatment of sepsis, however thorough, is not enough.

"Original sin" may be a "cause" like original sepsis. In these days of a return to a Hippocratic outlook, when emotional factors are accepted increasingly as being of importance in many conditions, it seems a pity to tie oneself to a mechanistic and atomistic attitude. Surely one should no longer talk in terms of A causing B, but of concomitant factors, meeting together, varying in priority in individual cases; even in terms of "vicious circles" rather than narrow causation. One should take an all-round view, and not a linear one, and achieve co-operation rather than rivalry with our various points of view.—I am, etc.,

Birmingham, April 16. CHARLES BURNS.

Sterilization of Syringes and Needles

SIR,—The article on the sterilization of syringes and needles by Professor J. W. Bigger, Professor J. W. S. Blacklock, and Dr. H. J. Parish (*Journal*, April 6, p. 582) is obviously of the greatest importance to everybody engaged in practice, but I suggest that their technique for sterilizing syringes for inoculation is impracticable for most busy general practitioners and is capable of improvement with antiseptics now available. In his excellent paper (April 4, 1931, p. 572) Professor L. P. Garrod has shown that phenol is comparatively ineffective as an antiseptic, compared with some others such as flavine and brilliant-green. Brilliant-green is ruled out by its staining properties, but he showed, if my memory is correct, that flavine has the property of inhibiting bacterial growth at a concentration of 1 in 1,250,000 when tested against the streptococcus.

I have for some years sterilized my needles and syringes with liq. acriflavine (1 in 1,000), or a mixture of one part of liq. acriflavine and four parts of industrial methylated spirit. I should be grateful if Professor Bigger would test my practical conclusions that this is a safe and satisfactory solution for this purpose. In testing I should like to point out that it is not reasonable to inoculate a drop of solution from a syringe thus sterilized into a tube of broth, because this does not approximate to the conditions *in vivo*. This is due to the fact that the traces of acriflavine in the solution are very much

diluted in the culture tube. For a fair test the concentration of flavine in the culture tube should be the same as that in the contents of the syringe. An additional practical point in favour of the spirit-flavine mixture is that both these solutions are used by the majority of practitioners, and the mixture is not nearly so irritating and painful as thymol solutions when introduced hypodermically.—I am, etc.,

St. Faiths, Norfolk, April 15. J. N. GALE.

Treatment of Wounds with "Zipp"

SIR,—I was interested to read Mr. W. K. Connell's letter on zipp in the *Journal* of February 17 (p. 273). In this country we see many severe wounds, the majority of which are foul and sloughing by the time the patient reaches hospital.

One case was admitted here in which the anterior aspect of the middle third of the right forearm had been blown away by the backfire of a rifle. The patient came to hospital eleven days after the accident, having walked a hundred miles with his wound covered by a filthy rag. The wound measured 4 inches by 3½ inches and exposed the comminuted and necrosed ulna in its deepest part. Amputation of the arm was seriously considered. The wound, however, was excised under chloroform, the necrosed pieces of ulna removed, and the whole depth of the wound filled with zipp paste. Gauze impregnated with zipp was not used to pack the wound. A plaster case was applied with a window, which was covered with several layers of gauze; this gauze was changed once a week.

The patient was admitted on January 10, 1940, and discharged as an out-patient on February 12, 1940. The superficial area of granulations then measured 1¼ inches in diameter. The plaster case was retained. As an in-patient he had had this plaster for four and a half weeks, and at no time was there any smell or discomfort to the patient. On discharge his finger movements were normal, and after attending for a further week as an out-patient he decided he was cured and left for the interior.

This is the type of case one will meet with in wartime. Zipp is also used here as routine in the treatment of tropical phagedaena and fulfils all the claims made for it.

My thanks are due to Dr. P. S. Bell, senior medical officer, Somaliland, for permission to publish this letter.—I am, etc.,

JOHN H. C. CLARKE, M.B., Ch.B.,
March 12. Medical Officer, Somaliland.

Free Choice of Doctor

SIR,—Dr. Willoughby Clark submits in the *Journal* of April 6 (p. 591) that doctors and patients would save much trouble if they would welcome and not resent being urged to make the inevitable surrender of their primitive liberty of being "capricious." Being "capricious" is "to change opinion without reason," but such change may be instinctive, and instinctive action, as apart from judgment based on facts, not infrequently turns out to be correct.

Instinct alone suggests that a voluntary surrender of any liberty, even the one of being "capricious" at choice, is a rashness, especially at a time when individualism is being trampled everywhere in the mud of uniformity. I maintain that it is wiser to retain as long as possible the liberty of personal selection, even should such opinion carry with it the penalty of being called "she-goat" by anyone who does not happen to be in agreement. (Fr. *caprise*; L. *capra*, a she-goat?).

What happens if facts later prove a so-called "capricious" judgment to be correct? Why should "surrender" be "inevitable"? And to whom is this "surrender" to be made? To what sort of a "civilization" does Dr. Clark propose that we conform, or what regime are we to be forced into? The liberty of a maggot, though in a silken (?) cocoon, or an industrious ant in an ant-heap?

Dr. Frederick Wood Jones, writing in *The Spirit of Adventure*, observes: "In truth, I think we are all sinking to the common level of a standardized loss of individuality. Few are prepared to let their fellows know that they are non-conformists in a world that accepts commonplace mediocrity as the hallmark of respectability." There is so much truth in this opinion that it is a welcome surprise to find in the last few numbers of the *Journal* a hint that the importance of individualism and the dangers of continued and culminating interference with individual liberty are not being entirely overlooked.

Surely it must be clear that insidiously applied restrictions on the general practitioner are not "happenings" by "mere chance," and must therefore be the result of a settled policy. Whose policy? The rapidly diminishing field for private practice and the opening range of contract practice are not developments without significance. Soon there will be no alternatives to insurance practice or contract service for the bulk of the profession. To an impartial observer it is clear that the whole medical profession is being taken steadily in the grip of some form of Socialism, Fascism, Russian Communism, or State medicine, or whatever name one cares to give to a system which demands regimentation of individuals and enforces its particular objectives by the most powerful weapon in the world.

Who happen to be the real gainers by the existence of the national health insurance system which we know to-day? Would it be correct to say that, so far as the profession is concerned, the result of the Act of 1911 has been the creation of a pseudo-prosperity now merging into enslavement within a highly organized and complicated bureaucratical hegemony? What is the significance of an edifice centralizing through a series of committees to an individual whose decisions go beyond even the courts of justice? Observe that this fact has been referred to by Lord Hewart, Lord Chief Justice of England, as "an example of departmental lawlessness," and he goes on to say in his book *The New Despotism*: ". . . the old despotism, which was defeated, offered Parliament a challenge . . . the new despotism, which is not yet defeated, gives Parliament an anaesthetic"!

Here are just a few matters which space does not permit to amplify. Perhaps the letters of stalwart defenders of individualism in medicine such as Dr. Alfred Cox and others may stimulate thought and emphasize the urgency of thinking very carefully before we are persuaded to surrender even the primitive (?) liberty of being "capricious."—I am, etc.,

Belfast, April 9. DOUGLAS BOYD.

A Philosophy of Medicine

SIR,—Sir Walter Langdon-Brown (March 23, p. 508) writes: "Philosophers often reprove medical men for their 'contemptuous ignorance' of academic philosophy. There are some grounds for their complaint, for training in natural science almost inevitably raises a resistance against what, quite erroneously, appears to be verbal gymnastics." This is part of a plea for the publication of a collected edition of Mr. Wilfred Trotter's papers. It accompanies the beginning of a discussion on philosophy and medicine in your columns which is particularly welcome at a time of crisis like the present. Training in natural science "almost inevitably raises a resistance against" philosophy only when (*a*) such training is unaccompanied by any training in logic, philosophy, etc., or (*b*) such training is superimposed upon a philosophical training (consciously or subconsciously acquired) which contradicts the philosophical content implicit in scientific method. In other words, no one practising applied science in medicine or in any other sphere can avoid working on the basis of philosophical assumptions. If the individual has not clearly defined those assumptions for himself he may find that in other spheres of his activity he makes other assumptions. Sooner or later such a contradiction produces difficulties, the nature of which may be completely misunderstood. One line of escape is pure empiricism. A second method of escape consists in dividing life up into watertight compartments with separate sets of assumptions (preferably unstated) for each—materialism for week-days, mysticism for Sundays. A third way out involves scrapping the assumptions on the basis

of which science has in the past gone forwards. There are signs of such a tendency within medicine in this country to-day. The fully developed trend is manifest under Nazism, where science is prostituted to the exigencies of the State and where the scientist is subservient to the commands of the Minister of Propaganda. Racial mysticism is only one manifestation of this intellectual degeneration. A fourth alternative involves the continued application of scientific method to *all* the problems that confront us. This requires courage.

Medicine and surgery have made tremendous strides during the past hundred years. Over and over again the "impossible" has been accomplished by the combined application of theory and practice. Theory has been modified in the light of practice, and practice in turn modified by fresh theory. Both have remained alive and moving forward. Is it possible now to cry halt?

The social application of the knowledge of medicine acquired through science demands an ever-widening study of environment—of the effect of environment on the individual and of the individual upon the environment. Which means that not only logic and philosophy, but sociology, history, and economics must form the basis of continued scientific advance. They in turn must be approached scientifically by all thinking scientists. The development of medicine itself demands a bold facing up to the realities of the intricacy of life to-day.

Yet a man as eminent and respected as the late Mr. Wilfred Trotter denies the possibility of this. In his address "Has the Intellect a Function?" printed in the *Lancet* of June 24, 1939, he states: "The scientific method is unfitted to tackle directly the turbulent stream of everyday experience and common affairs. . . . Thus, for example, the work of social Government is not as such directly accessible to it on account of the jumbled miscellaneity of the matters involved."

Is such defeatism justified? Two hundred years ago, could not many problems of disease have been described as "jumbles of miscellaneity"? Yet classification, experiment, theory, and practice based on theory produced advancing knowledge. We must not run away from the results which may be attained by tackling the problems of to-day. But to begin with we must know where we stand. Too long have medical men separated theory and practice. The time is ripe for full discussion of the philosophical assumptions on which both practice and research are based.—I am, etc.,

London, N.W.3, March 30. RUSCOE CLARKE, F.R.C.S.

Walking Plasters

SIR,—I was interested to read Dr. Frank Piggott's description in the *Journal* of March 9 (p. 392) of a very neat appliance for a walking plaster. May I mention that a section of old motor tyre cut to the right shape answers quite well. It is perhaps a trifle clumsy, but it allows the patient to walk on the sole of the plaster. The piece of tyre is cut out to fit the sole of the plaster, and has side flaps tapering up to the region of each malleolus. It is quite easy to fix on with a fresh plaster bandage (see illustrations). Obviously lorry or "balloon" tyres are unsuitable.

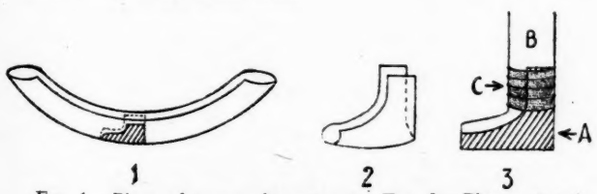

FIG. 1.—Piece of tyre to be cut out. FIG. 2.—Piece cut out. FIG. 3.—Piece of tyre (A) applied to foot in plaster cast (B) with bandage (C) to keep A in position.

I have used this device for some time now, and have found it quite satisfactory. The idea is not original, though I cannot remember who suggested it. I think it is worth mentioning, as the device is simple, cheap, and satisfactory, and may not have occurred to some readers.—I am, etc.,

Old Cairo, April 2. E. N. CALLUM, F.R.C.S.Ed.

Repair after Femoral Herniotomy

SIR,—May I add my testimony in corroboration of the excellent results to be obtained in femoral hernioplasty by the "free patch-graft" method so ably described by Mr. Lang Stevenson in your issue of March 30 (p. 528). I first used this method in 1937 for a femoral hernia which had twice defied repair by the Lotheissen technique and in which the femoral canal admitted two fingers and the conjoined tendon was almost non-existent. I have employed the method frequently since, and have been uniformly pleased with its results.

My technique differs from that described by Mr. Stevenson in only one particular: I use the two deeper layers of the rectus sheath as the donor area instead of the fascia lata of the thigh. By separating the upper leaf of the incised external oblique aponeurosis from the deeper layers of the rectus sheath (a surprisingly easy procedure) the layer contributed by the internal oblique and transversalis is readily exposed through the same inguinal incision, the patch graft cut from it provides a strong fascial septum for the closure of the femoral canal, and the residual rectus sheath is in no way weakened when the aponeurosis of the external oblique is finally replaced. My use of the rectus sheath in this manner was a natural development of my accustomed employment of the Bloodgood "rectus sheath flap" repair of those inguinal herniae in which some kind of fascial repair seems indicated but a full Gallie technique is not called for.—I am, etc.,

Douglas, Man, April 13. ERIC VERNON, M.D., F.R.C.S.

Obituary

JOSEPH GOODWIN-TOMKINSON, M.D.

Consulting Physician for Diseases of the Skin, Glasgow Western Infirmary

By the sudden death on April 12 in his seventy-second year of Dr. J. Goodwin-Tomkinson Glasgow has lost one of its best-known medical men and the British Medical Association an old and loyal member.

Joseph Goodwin-Tomkinson was born in Cheshire. He first embarked on a banking career, but turned to medicine at the age of 28, and graduated M.B., Ch.B. at Glasgow in 1901, and M.D. two years later. Having decided to devote himself to dermatology, he went abroad and studied in Paris and Berlin, acquiring not only an excellent grounding in his chosen specialty but also a facility in the French and German languages which stood him in good stead later. Returning to Glasgow, he was appointed successively medical electrician for diseases of the skin, dispensary physician for diseases of the skin, and visiting physician with charge of skin wards—all at the Western Infirmary. On his attaining the age limit in 1934 he was appointed honorary consulting dermatologist. During his earlier years Goodwin-Tomkinson was professor of dermatology in the Anderson College of Medicine, and later he became McCall Anderson Memorial Lecturer on Dermatology at the University. He also held posts as consulting dermatologist to the Glasgow Ear, Nose, and Throat Hospital, Lanarkshire County Council, and the Education Committees of Glasgow and Dumbartonshire. He acted as joint secretary of the Section of Dermatology at the meeting of the B.M.A. in London in 1910, and as vice-president at the Glasgow Meeting in 1922. He was an original member of the British Association of Dermatology, and was its president from 1928 to 1929.

The first man in Glasgow to devote himself entirely to dermatology from the outset of his professional life, Goodwin-Tomkinson was also the first to study radiology

diluted in the culture tube. For a fair test the concentration of flavine in the culture tube should be the same as that in the contents of the syringe. An additional practical point in favour of the spirit–flavine mixture is that both these solutions are used by the majority of practitioners, and the mixture is not nearly so irritating and painful as thymol solutions when introduced hypodermically.—I am, etc.,

St. Faiths, Norfolk, April 15. J. N. GALE.

Treatment of Wounds with "Zipp"

SIR,—I was interested to read Mr. W. K. Connell's letter on zipp in the *Journal* of February 17 (p. 273). In this country we see many severe wounds, the majority of which are foul and sloughing by the time the patient reaches hospital.

One case was admitted here in which the anterior aspect of the middle third of the right forearm had been blown away by the backfire of a rifle. The patient came to hospital eleven days after the accident, having walked a hundred miles with his wound covered by a filthy rag. The wound measured 4 inches by 3½ inches and exposed the comminuted and necrosed ulna in its deepest part. Amputation of the arm was seriously considered. The wound, however, was excised under chloroform, the necrosed pieces of ulna removed, and the whole depth of the wound filled with zipp paste. Gauze impregnated with zipp was not used to pack the wound. A plaster case was applied with a window, which was covered with several layers of gauze; this gauze was changed once a week.

The patient was admitted on January 10, 1940, and discharged as an out-patient on February 12, 1940. The superficial area of granulations then measured 1½ inches in diameter. The plaster case was retained. As an in-patient he had had this plaster for four and a half weeks, and at no time was there any smell or discomfort to the patient. On discharge his finger movements were normal, and after attending for a further week as an out-patient he decided he was cured and left for the interior.

This is the type of case one will meet with in wartime. Zipp is also used here as routine in the treatment of tropical phagedaena and fulfils all the claims made for it.

My thanks are due to Dr. P. S. Bell, senior medical officer, Somaliland, for permission to publish this letter.—I am, etc.,

JOHN H. C. CLARKE, M.B., Ch.B.,
March 12. Medical Officer, Somaliland.

Free Choice of Doctor

SIR,—Dr. Willoughby Clark submits in the *Journal* of April 6 (p. 591) that doctors and patients would save much trouble if they would welcome and not resent being urged to make the inevitable surrender of their primitive liberty of being "capricious." Being "capricious" is "to change opinion without reason," but such change may be instinctive, and instinctive action, as apart from judgment based on facts, not infrequently turns out to be correct.

Instinct alone suggests that a voluntary surrender of any liberty, even the one of being "capricious" at choice, is a rashness, especially at a time when individualism is being trampled everywhere in the mud of uniformity. I maintain that it is wiser to retain as long as possible the liberty of personal selection, even should such opinion carry with it the penalty of being called "she-goat" by anyone who does not happen to be in agreement. (Fr. *caprise*; L. *capra*, a she-goat?).

What happens if facts later prove a so-called "capricious" judgment to be correct? Why should "surrender" be "inevitable"? And to whom is this "surrender" to be made? To what sort of a "civilization" does Dr. Clark propose that we conform, or what regime are we to be forced into? The liberty of a maggot, though in a silken (?) cocoon, or an industrious ant in an ant-heap?

Dr. Frederick Wood Jones, writing in *The Spirit of Adventure*, observes: "In truth, I think we are all sinking to the common level of a standardized loss of individuality. Few are prepared to let their fellows know that they are non-conformists in a world that accepts commonplace mediocrity as the hallmark of respectability." There is so much truth in this opinion that it is a welcome surprise to find in the last few numbers of the *Journal* a hint that the importance of individualism and the dangers of continued and culminating interference with individual liberty are not being entirely overlooked.

Surely it must be clear that insidiously applied restrictions on the general practitioner are not "happenings" by "mere chance," and must therefore be the result of a settled policy. Whose policy? The rapidly diminishing field for private practice and the opening range of contract practice are not developments without significance. Soon there will be no alternatives to insurance practice or contract service for the bulk of the profession. To an impartial observer it is clear that the whole medical profession is being taken steadily in the grip of some form of Socialism, Fascism, Russian Communism, or State medicine, or whatever name one cares to give to a system which demands regimentation of individuals and enforces its particular objectives by the most powerful weapon in the world.

Who happen to be the real gainers by the existence of the national health insurance system which we know to-day? Would it be correct to say that, so far as the profession is concerned, the result of the Act of 1911 has been the creation of a pseudo-prosperity now merging into enslavement within a highly organized and complicated bureaucratical hegemony? What is the significance of an edifice centralizing through a series of committees to an individual whose decisions go beyond even the courts of justice? Observe that this fact has been referred to by Lord Hewart, Lord Chief Justice of England, as "an example of departmental lawlessness," and he goes on to say in his book *The New Despotism*: ". . . the old despotism, which was defeated, offered Parliament a challenge . . . the new despotism, which is not yet defeated, gives Parliament an anaesthetic"!

Here are just a few matters which space does not permit to amplify. Perhaps the letters of stalwart defenders of individualism in medicine such as Dr. Alfred Cox and others may stimulate thought and emphasize the urgency of thinking very carefully before we are persuaded to surrender even the primitive (?) liberty of being "capricious."—I am, etc.,

Belfast, April 9. DOUGLAS BOYD.

A Philosophy of Medicine

SIR,—Sir Walter Langdon-Brown (March 23, p. 508) writes: "Philosophers often reprove medical men for their 'contemptuous ignorance' of academic philosophy. There are some grounds for their complaint, for training in natural science almost inevitably raises a resistance against what, quite erroneously, appears to be verbal gymnastics." This is part of a plea for the publication of a collected edition of Mr. Wilfred Trotter's papers. It accompanies the beginning of a discussion on philosophy and medicine in your columns which is particularly welcome at a time of crisis like the present. Training in natural science "almost inevitably raises a resistance against" philosophy only when (*a*) such training is unaccompanied by any training in logic, philosophy, etc., or (*b*) such training is superimposed upon a philosophical training (consciously or subconsciously acquired) which contradicts the philosophical content implicit in scientific method. In other words, no one practising applied science in medicine or in any other sphere can avoid working on the basis of philosophical assumptions. If the individual has not clearly defined those assumptions for himself he may find that in other spheres of his activity he makes other assumptions. Sooner or later such a contradiction produces difficulties, the nature of which may be completely misunderstood. One line of escape is pure empiricism. A second method of escape consists in dividing life up into watertight compartments with separate sets of assumptions (preferably unstated) for each—materialism for week-days, mysticism for Sundays. A third way out involves scrapping the assumptions on the basis

of which science has in the past gone forwards. There are signs of such a tendency within medicine in this country to-day. The fully developed trend is manifest under Nazism, where science is prostituted to the exigencies of the State and where the scientist is subservient to the commands of the Minister of Propaganda. Racial mysticism is only one manifestation of this intellectual degeneration. A fourth alternative involves the continued application of scientific method to *all* the problems that confront us. This requires courage.

Medicine and surgery have made tremendous strides during the past hundred years. Over and over again the "impossible" has been accomplished by the combined application of theory and practice. Theory has been modified in the light of practice, and practice in turn modified by fresh theory. Both have remained alive and moving forward. Is it possible now to cry halt?

The social application of the knowledge of medicine acquired through science demands an ever-widening study of environment—of the effect of environment on the individual and of the individual upon the environment. Which means that not only logic and philosophy, but sociology, history, and economics must form the basis of continued scientific advance. They in turn must be approached scientifically by all thinking scientists. The development of medicine itself demands a bold facing up to the realities of the intricacy of life to-day.

Yet a man as eminent and respected as the late Mr. Wilfred Trotter denies the possibility of this. In his address "Has the Intellect a Function?" printed in the *Lancet* of June 24, 1939, he states: "The scientific method is unfitted to tackle directly the turbulent stream of everyday experience and common affairs. . . . Thus, for example, the work of social Government is not as such directly accessible to it on account of the jumbled miscellaneity of the matters involved."

Is such defeatism justified? Two hundred years ago, could not many problems of disease have been described as "jumbles of miscellaneity"? Yet classification, experiment, theory, and practice based on theory produced advancing knowledge. We must not run away from the results which may be attained by tackling the problems of to-day. But to begin with we must know where we stand. Too long have medical men separated theory and practice. The time is ripe for full discussion of the philosophical assumptions on which both practice and research are based.—I am, etc.,

London, N.W.3, March 30. RUSCOE CLARKE, F.R.C.S.

Walking Plasters

SIR,—I was interested to read Dr. Frank Piggott's description in the *Journal* of March 9 (p. 392) of a very neat appliance for a walking plaster. May I mention that a section of old motor tyre cut to the right shape answers quite well. It is perhaps a trifle clumsy, but it allows the patient to walk on the sole of the plaster. The piece of tyre is cut out to fit the sole of the plaster, and has side flaps tapering up to the region of each malleolus. It is quite easy to fix on with a fresh plaster bandage (see illustrations). Obviously lorry or "balloon" tyres are unsuitable.

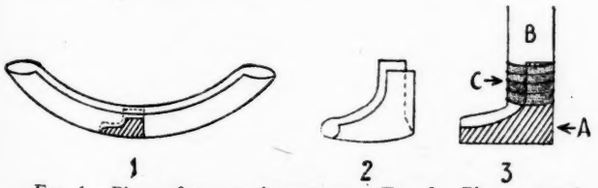

FIG. 1.—Piece of tyre to be cut out. FIG. 2.—Piece cut out. FIG. 3.—Piece of tyre (A) applied to foot in plaster cast (B) with bandage (C) to keep A in position.

I have used this device for some time now, and have found it quite satisfactory. The idea is not original, though I cannot remember who suggested it. I think it is worth mentioning, as the device is simple, cheap, and satisfactory, and may not have occurred to some readers.—I am, etc.,

Old Cairo, April 2. E. N. CALLUM, F.R.C.S.Ed.

Repair after Femoral Herniotomy

SIR,—May I add my testimony in corroboration of the excellent results to be obtained in femoral hernioplasty by the "free patch-graft" method so ably described by Mr. Lang Stevenson in your issue of March 30 (p. 528). I first used this method in 1937 for a femoral hernia which had twice defied repair by the Lotheissen technique and in which the femoral canal admitted two fingers and the conjoined tendon was almost non-existent. I have employed the method frequently since, and have been uniformly pleased with its results.

My technique differs from that described by Mr. Stevenson in only one particular: I use the two deeper layers of the rectus sheath as the donor area instead of the fascia lata of the thigh. By separating the upper leaf of the incised external oblique aponeurosis from the deeper layers of the rectus sheath (a surprisingly easy procedure) the layer contributed by the internal oblique and transversalis is readily exposed through the same inguinal incision, the patch graft cut from it provides a strong fascial septum for the closure of the femoral canal, and the residual rectus sheath is in no way weakened when the aponeurosis of the external oblique is finally replaced. My use of the rectus sheath in this manner was a natural development of my accustomed employment of the Bloodgood "rectus sheath flap" repair of those inguinal herniae in which some kind of fascial repair seems indicated but a full Gallie technique is not called for.—I am, etc.,

Douglas, Man, April 13. ERIC VERNON, M.D., F.R.C.S.

Obituary

JOSEPH GOODWIN-TOMKINSON, M.D.

Consulting Physician for Diseases of the Skin, Glasgow Western Infirmary

By the sudden death on April 12 in his seventy-second year of Dr. J. Goodwin-Tomkinson Glasgow has lost one of its best-known medical men and the British Medical Association an old and loyal member.

Joseph Goodwin-Tomkinson was born in Cheshire. He first embarked on a banking career, but turned to medicine at the age of 28, and graduated M.B., Ch.B. at Glasgow in 1901, and M.D. two years later. Having decided to devote himself to dermatology, he went abroad and studied in Paris and Berlin, acquiring not only an excellent grounding in his chosen specialty but also a facility in the French and German languages which stood him in good stead later. Returning to Glasgow, he was appointed successively medical electrician for diseases of the skin, dispensary physician for diseases of the skin, and visiting physician with charge of skin wards—all at the Western Infirmary. On his attaining the age limit in 1934 he was appointed honorary consulting dermatologist. During his earlier years Goodwin-Tomkinson was professor of dermatology in the Anderson College of Medicine, and later he became McCall Anderson Memorial Lecturer on Dermatology at the University. He also held posts as consulting dermatologist to the Glasgow Ear, Nose, and Throat Hospital, Lanarkshire County Council, and the Education Committees of Glasgow and Dumbartonshire. He acted as joint secretary of the Section of Dermatology at the meeting of the B.M.A. in London in 1910, and as vice-president at the Glasgow Meeting in 1922. He was an original member of the British Association of Dermatology, and was its president from 1928 to 1929.

The first man in Glasgow to devote himself entirely to dermatology from the outset of his professional life, Goodwin-Tomkinson was also the first to study radiology

from the dermatological point of view, and one of his chief claims to remembrance is his introduction into the West of Scotland of a standardized and safe method of epilating the scalp by *x* rays, using the then new pastille of Sabouraud and Noiré. It is, however, as the teacher of generations of students and as a highly successful practical exponent of the art of dermatology that he will best be remembered. While he wrote no long treatise or monograph, he contributed many papers to general and special journals at home and abroad. As many as sixteen articles from his pen appeared in the pages of the *Journal* between 1907 and 1936. Among these may be noted those on the familial incidence of concurrent strabismus and alopecia, and the familial incidence of monilethrix.

Dr. Goodwin-Tomkinson is survived by his wife and son, to whom we extend our sympathy.

The death at the age of 86 of Dr. THOMAS BENJAMIN FRANKLIN EMINSON of Scotter, near Scunthorpe, recalls a long record of medical service by the Eminson family, who for over a hundred years have practised at Scotter. Thomas Eminson studied medicine at St. Mary's Hospital, where he won an entrance exhibition in natural science, and took the L.S.A. in 1880 and the M.R.C.S. in 1881. For over fifty years he worked in the practice founded by his grandfather, and three of his sons are members of the medical profession—Lieutenant-Colonel B. F. Eminson, I.M.S., Dr. R. F. Eminson of Ashby (who was chairman of the Scunthorpe Division of the B.M.A. last year), and Dr. C. F. Eminson of Doncaster. Dr. Thomas Eminson, who had been a member of the Association for fifty-five years, was keenly interested in archaeology and folklore, and did much work in linking up place names with the past history of the people of Lincolnshire. Six years ago he published *Place Names of Lindsey West Riding*. To each of the numerous small villages and farmsteads in that area he assigned the changes of name through which they had passed, giving the origins of the names where possible and adding notes from his own knowledge acquired by observation or by the study of original documents. It was an excellent piece of work, the drier details of nomenclature being refreshed by many light touches. Sir JAMES BERRY writes: Thomas Benjamin Franklin Eminson was a most lovable character and in many ways a remarkable man. After qualifying, he went into a family general practice at Scotter in Lincolnshire. Here he practised continuously for more than half a century over an extensive, thinly populated, and mainly agricultural district. To drive with him on his long country rounds was an education in itself, as he seemed to know the names of every plant, bird, and bush one came across, and would discourse learnedly on any of them. Living among an intelligent race of farmers, he interested himself much in folklore and in the early history of his county. Later in life he took up the study of local place names, and though his views thereon were by no means orthodox they were the product of great industry and much research among early documents, both manuscript and printed. He was widely respected for his kindness, sincerity, and integrity.

We regret to announce the death of Dr. IVOR RIDGE-JONES of the Cleave, Cawsand, near Plymouth, who died suddenly at his surgery at Millbrook on February 29 at the age of 55. Dr. Ridge-Jones was educated at Eton and Trinity Hall, Cambridge, and qualified M.R.C.S.Eng. and L.R.C.P. Lond. in 1912 from St. George's and University College Hospitals, London. He then studied tropical medicine and gained his diploma, London School of Tropical Medicine, in 1914. During the last war he served as a captain in the R.A.M.C. in Mesopotamia, and later in the North Persian campaign in 1921, when he was awarded the Military Cross for conspicuous gallantry tending the wounded under heavy fire. He also received the North Persian Medal with two clasps. From 1922 to 1932 he was medical officer of health in Iraq, and was awarded the Order of El Rafidain by the late King Feisal for devotion to duty. In 1933 he acquired the practice of the late Dr. J. Currie at Cawsand, and during the last seven years carried on an extensive practice in the parishes of Maker, Rame, and Millbrook. The very large attendance at his funeral at Maker Parish Church on March 4 and the many floral tributes were evidence of the love and esteem in which he was held by the community.

We regret to announce the death on April 10, after a long illness, of Mr. HERBERT F. WOOLFENDEN, M.D., F.R.C.S., senior surgeon to the Liverpool Royal Infirmary. He was a student of the Liverpool Medical School, and was one of the most distinguished men of his year. After a brilliant academic career he served first as house-surgeon to Mr. F. T. Paul, and then became senior demonstrator of anatomy under the late Professor Paterson and, later on, Thelwall Thomas Pathological Fellow in the University. He was appointed assistant surgeon to the Royal Infirmary in 1911 and full surgeon in 1925, and most faithfully served that institution up to his retirement a few days ago. Woolfenden was a first-class surgeon, a keen diagnostician, and a bold operator. Modest to a degree and of a most retiring disposition, his work was best appreciated by his colleagues and those patients who were fortunate to be under his care. He was one of the earliest of the assistant surgeons to volunteer for service abroad, and he did magnificent work throughout the last war in France. Some idea of his work after the Somme battle may be gleaned from the following extract from Harvey Cushing's famous book *A Surgeon's Journal, 1915–1918*. Referring to No. 11 General Hospital Cushing says: "June 4, 1917. Undermanned—often only eight medical officers and these frequently shifted; he [Colonel Campbell] and Woolfenden have faced the music for the past few months, having had 8,000 patients pass through their hands since the Somme offensive; most of them serious cases, night work, secondary haemorrhages, and major infections, and yet they have found time to do some careful work with the Carrel-Dakin treatment." He was a very sound and sane general surgeon. During the war he published papers on the removal of a bullet from the lateral ventricle, gunshot wounds of the knee, and gunshot wounds of the head. Since the war he has worked hard on trigeminal and glossopharyngeal neuralgias, exophthalmic goitre, and gastro-enterology, but he was always extremely diffident about publication and wrote little. Nevertheless he has always been a great stimulus to his colleagues, assistants, and students in Liverpool, all of whom will long cherish his memory; a silent but most sympathetic doctor and a true friend. He was a great reader and a very good golfer. He leaves one daughter, now a medical student, and two sons.—R. E. K.

The recent sudden death in London of Professor PAUL SCHUSTER has deprived clinical neurology of one of its most brilliant exponents. Professor Schuster held the chair of neurology in Berlin and the directorship of the Hufeland Hospital until his forced retirement at the hands of the Third Reich. With rare courage Schuster remained in Berlin under conditions of increasing duress, his pride preventing him from accepting refuge in this country. Eventually, however, in August last, he left Germany and retired to London, where he joined his son. Schuster was one of the greatest and most versatile neurologists on the Continent; he possessed an intimate knowledge of many of the obscurer aspects of nervous disease, particularly in connexion with the maladies of advanced age and with the syndromes of cerebrovascular degeneration. He wrote many important papers to the scientific journals, one of the most outstanding being his last contribution—a clinico-pathological monograph upon lesions of the optic thalamus. As a bedside physician and teacher Schuster was probably the finest neurologist in Germany, and his courteous and hospitable welcome to visitors at his hospital will be gratefully remembered by not a few in this country. His death will be mourned by his former students and assistants, many of whom have since achieved deserved fame either in their own country or as exiles.

Medical Notes in Parliament

Sir John Simon opened the Budget on April 23. He said £2,667,000,000 had to be provided for expenditure in the current year, of which he proposed to raise £1,234,000,000 by taxes and other sources of revenue. Income tax would be levied at the standard rate of 7s. 6d. in the £. Legislation would be proposed permitting surtax to be charged on incomes over £1,500 in subsequent years. Increases were proposed in the duties on beer, spirits, tobacco, and matches. Post Office charges would be raised, the Inland letter rate becoming 2½d. and the telephone charges being increased. Sir John did not speak of a medicine duty, but announced a Bill for the registration of wholesalers, so that a tax could be imposed on purchases of goods by retailers, with certain exceptions.

The House approved resolutions for the temporary validation of some of these taxes.

Sir John Anderson presented on April 18 the Workmen's Compensation (Supplementary Allowances) Bill "to provide for the payment of supplementary allowances in respect of wives and children to male workmen entitled to weekly payments by way of compensation under the Workmen's Compensation Act, 1925."

Welsh Board of Health

On April 16 Miss HORSBRUGH informed Sir H. Williams that the decision of the Minister of Health to exercise through the Welsh Board of Health at Cardiff certain powers now administered from London would ensure that essential health services in Wales should be vigorously administered. Certain blocks of work were being transferred to the Welsh Board, and this had necessitated the addition of four senior and certain junior posts to the Board's staff and the regrading of three other posts, while some reduction would be effected in the establishment in London.

Protection of Practices Scheme and Terms of Service

On April 16 Mr. GROVES asked the Minister of Health, with reference to the schemes to protect medical practices, when and how insurance committees applied to him to vary the statement of the terms of service under Regulations 3 and 23 of the National Health Insurance (Medical Benefit) Regulations, 1936. Dr. ELLIOT said that a number of insurance committees had individually applied at various times in recent months for his approval of amendments of the terms of service for insurance practitioners in their areas (including the provisions applicable under distribution schemes) for the purpose of local schemes for the protection of insurance practices. The applications were made in compliance with the procedure prescribed in the regulations to which Mr. Groves referred.

Evacuation and Distribution of Population

Speaking during a debate on April 17 on the distribution of the industrial population Dr. ELLIOT said it was reckoned that at the date of the national register last autumn the evacuation areas diminished in population by 2,250,000 persons, of whom over 1,500,000 had been lost mainly by London areas. The Government must examine the results of this evacuation before pledging itself to the course of action recommended by the Royal Commission on the Distribution of the Industrial Population. He said that in the last war temporary huts were built for workers imported into a district. Now the houses were built for permanent use. The same principle was followed with regard to emergency hospitals. In the siting of them they had arranged that after the war they would fit in with the normal hospital provision of the country.

Health in Government Factories

Sir JOHN ANDERSON, in an answer to Sir Ernest Graham-Little on April 18, said the Industrial Health Research Board was in active operation and had taken the place of the Health of Munitions Workers Committee. The Board had issued a report, "Industrial Health in War," containing recommendations on hours of work and other matters. The Government had in mind the importance of avoiding excessively long hours. On that he was in consultation with the Supply Departments and with the Minister of Labour. In a supplementary question Sir Ernest asked the Home Secretary to ensure early medical treatment for injuries sustained in munitions manufacture. Sir John said he would take note of that.

Replying to Mr. Mander, Sir JOHN ANDERSON said he had consulted the Supply Departments on the provision of welfare arrangements in Government factories.

London Consultants and the E.M.S.

Sir ERNEST GRAHAM-LITTLE asked Dr. Elliot on April 18 to remedy cases of individual hardship among London consultants of great experience and of senior rank who volunteered for the Emergency Medical Service before the outbreak of war but still remained on the deferred list unpaid, while at the same time consultants of junior rank who applied for permission to join one of the fighting Services in a medical capacity had been informed that they could not be released from the Emergency Medical Service. Dr. ELLIOT answered that the decision whether practitioners were to be called up for employment in the Emergency Medical Service or whether members of the Service were to be released to the armed Forces must depend on the needs of the Emergency Hospital Scheme in relation to other demands on medical personnel, including those of the armed Forces.

Sir ERNEST GRAHAM-LITTLE asserted that a medical consultant, enrolled for whole-time service in August last, finding, when called up for service, practically nothing to do, accepted through his sector officer payment on a sessional basis in accordance with Clause 4 of his original contract, but, on applying for an appointment on a part-time basis on the terms offered last November to a large number of consultants, was refused on the ground that by taking sessional payment he had forfeited the option of part-time service. Dr. ELLIOT replied that this practitioner was enrolled on a whole-time basis. At his own request the enrolment was cancelled in favour of enrolment on a sessional basis, under which payment was made as and when services were required under the scheme. The subsequent offer applied only to those who were employed for whole-time service at the time of the offer.

A.R.P. Medical Services

On April 23 Mr. HARVEY asked the Minister of Health whether any county council or borough council had been authorized or given powers to appoint a medical officer in charge of air raid precautions medical services and to delegate to him the complete responsibility for such services independently of the medical officer of health for the county or borough. Dr. ELLIOT replied that the precise relation to the medical officer of health of any medical officers appointed by a local authority in connexion with air raid precautions services was a matter for the authority, but it was generally accepted that the responsibility for the casualty services should rest with the medical officer of health.

Medical Benefit for Dependants

Mr. GARRO JONES on April 23 asked the Secretary of State for Scotland whether he was considering the representations from Scottish health insurance committees urging that arrangements should be made to provide medical treatment for dependants of insured persons serving with the Forces. Mr. COLVILLE said that careful consideration had been given to these and other similar representations by the Minister of Health and himself, in consultation with all the Departments concerned. The Government had concluded that they could not fairly distinguish for this purpose between dependants of men serving with the armed Forces and dependants of insured persons in civil occupations. The question of extending medical benefit to the dependants of all insured persons had been sympathetically considered from time to time, but the Government did not consider that in present circumstances they would be justified in proposing so far-reaching a develop-

ment of social policy. In the great majority of cases the pay and allowances provided by the Service Departments should be sufficient to enable the cost of medical treatment to be met. The War Service Grants Advisory Committee had power to supplement such pay and allowances in cases of exceptional hardship resulting from the change brought about in the financial position of the family by reason of the men's war services.

Tuberculosis Institutional Accommodation in Wales.—On April 1 there were 258 patients awaiting admission to sanatoria in Wales and Monmouthshire. The number was 272 at the corresponding period of last year, and 357, 369, and 183 at the three intervening quarters respectively. Construction of additional hospitals to accommodate nearly 1,000 patients is in hand at Denbigh and Chepstow; the former hospital is approaching completion, and the latter is expected to be completed in September.

Professor J. C. Drummond.—On April 16 Mr. LENNOX-BOYD informed Captain Plugge that Professor Drummond was Scientific Adviser to the Ministry of Food, and was available to give advice and assistance on scientific problems arising in any part of the Ministry. He was in constant touch with the various organizations which had been set up to deal with scientific questions in which the Government was concerned.

Diphtheria Inoculation of Unaccompanied Children.—Dr. ELLIOT told Mr. Groves on April 18 that he was not aware that the cost of inoculation against diphtheria had in any case been charged against the funds available for the medical treatment of unaccompanied evacuated children. Normally the material for inoculation was supplied by the local authority. In the case of evacuated children the cost might be charged against the evacuation account. He did not consider any change in the present arrangements to be necessary.

Lancashire Health Insurance Distribution Schemes.—The amendments to the allocation and distribution schemes of the Lancashire Insurance Committee which took effect as from April 20, 1940, do not affect that portion of the voluntary scheme for the protection of local practices which relates to private as distinct from insurance practice. There is accordingly, Dr. ELLIOT remarked on April 18, no reason why this part of the voluntary scheme, over which he had no jurisdiction, should cease to operate.

Notifications of Whooping-cough.—On April 23 Mr. GROVES asked the Minister of Health if he was aware that the number of cases of whooping-cough reported since this disease was made notifiable six months ago was equivalent to one case per practising doctor—that is, far below the number known to have occurred—and what steps he proposed to take to ensure more accurate returns. Dr. ELLIOT said he was aware that the number of cases of whooping-cough notified under the regulations was approximately at the rate of one case for each doctor in general practice, but he had no reason to suppose that this number was less than the number of cases treated by doctors.

Notes in Brief

Sir John Simon is not prepared to propose an alteration of the law which at present makes no provision for exempting bequests for research from Estate Duty.

Pending experience of the working of the scheme for the domiciliary treatment of civilian war casualties, Dr. Elliot has not thought it necessary to make special provision for the exceptional type of case when the casualty, after a few weeks' treatment, removes to another part of the country.

Dr. Elliot states that sick bays are intended only for minor ailments which would ordinarily be nursed at home, but which it is not reasonable to expect a housewife to nurse in the case of children billeted on her. The cost of maintenance of sick bays is a charge on the responsible local authority.

The number of maternity and child welfare clinics in England and Wales which are in use for civil defence purposes is 316. This does not necessarily imply that they are not available for their normal use.

In Durham County and Tyneside ten clinics are in joint occupation for civil defence and maternity and child welfare purposes. One clinic is used wholly as a first-aid post, and alternative premises have been found for the work of the clinic.

On April 16 Mr. COLVILLE stated that no deaths of children under 5 years of age had been registered in Scotland as due to small-pox from 1924 to 1938. During that period ten deaths of children under 5 years of age were registered in Scotland as due to the effects of vaccination.

Medical News

Sir Comyns Berkeley has been re-elected chairman of the Central Midwives Board for the year ending March 31, 1941.

Professor F. R. Nager will deliver the Semon Lecture on "The Paranasal Approach to Intrasellar Tumours" at the Royal Society of Medicine, 1, Wimpole Street, W., on Thursday, May 2, at 5 p.m.

Mr. Morris Datnow will deliver the third William Blair-Bell Memorial Lecture before the Royal College of Obstetricians and Gynaecologists, 58, Queen Anne Street, W., to-day, Saturday, April 27, at 3 p.m.

The annual general meeting of the Research Defence Society will be held at the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Tuesday, May 7, at 3.30 p.m. Owing to the war the Stephen Paget Memorial Lecture will not be delivered this year.

The following resolution was passed at a recent meeting of the Executive Committee of the Socialist Medical Association: "The Socialist Medical Association demands that medical conscription shall not be enforced until a national plan has been elaborated whereby allocation can be decided upon to meet the needs of both the armed forces and the civil population so that available medical personnel shall be distributed to the best advantage of all."

King's College Hospital has completed a hundred years of existence, and to mark the occasion a tablet was unveiled on April 17 at Strand House, Portugal Street, W.C., which stands on the site occupied by the hospital from 1839 to 1913. The ceremony was performed by the Dowager Lady Hambleden, and the tablet acknowledges the hospital's indebtedness to the firm of W. H. Smith and Son, who have endowed several beds and are collecting 2,000 guineas for the hospital as a centenary fund. The site on which King's College Hospital now stands at Denmark Hill was a gift of Lord Hambleden.

Hospitals have been advised by the Ministry of Health to recruit volunteers to act as stretcher-bearers in the event of air raids, or in any other emergency which entails the moving of large numbers of patients. Suitable instructions and practice in loading and unloading ambulances and carrying stretcher cases are to be given to the volunteers.

A special memorial service to the late Mr. George E. Waugh will be held in the Chapel of the Hospital for Sick Children, Great Ormond Street, London, W.C.1, on Wednesday, May 1, at 4 p.m. The Board of Management will welcome any of his friends at the service.

Universities and Colleges

UNIVERSITY OF OXFORD

Nuffield Department of Surgery: Lectures

The following lectures will be delivered in the Nuffield Institute on Fridays at 8.30 p.m. from May 3 to June 14. By Professor K. Koffka: "Human Behaviour. A Brief Survey of Psychology with Some Reference to Pathological Phenomena." May 3, (1) Introduction: surveying the field. The world we create and how we create it; May 10 (2) The past in the present: a theoretical analysis of memory and experience; May 17, (3) Modern experiments on memory; May 24, (4) Human activity: security and freedom. By Dr. P. del Río-Hortega: "The Cytology of the Nervous System in Normal and Pathological Conditions." May 31, (1) The nerve cell; June 7, (2) The neuroglia; June 14 (3) The microglia.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examinations indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* R. R. Browne, J. C. Davidson, J. L. Feuchtwanger, J. P. Hayes. *Part II:* J. O. Y. Cole, C. W. C. Gough, J. A. G. Hair, T. H. Hills, J. Innes, R. I. Lewis, I. G. McIntyre, E. B. P. Madden, S. Mahananda, H. S. Murray, J. O. Salik, D. M. Scrimgeour, A. C. R. Wakeman, J. Walter, A. B. Wayte.

UNIVERSITY OF GLASGOW

A graduation ceremony was held on April 20, when the following medical degrees were conferred:

M.D.—*T. Crawford, *A. S. Rogen, *A. T. M. Wilson, †J. N. M. Chalmers, †W. J. B. Riddell, ‡J. B. Wallace (*in absentia*), ‡R. B. McMillan, ‡A. McN. Wyllie, A. K. Boyle.

CH.M.—I. M. Orr.

M.B., CH.B.—*J. W. Chambers, W. S. Aird, Eileen F. Baird, T. H. C. Barclay, P. O. Beatton, J. H. Bell, T. D. Brown, D. I. Buchanan, J. Chambers, D. H. Clark, J. W. Cook, R. A. Corbett, Elizabeth M. Dale, J. W. Dent, J. McC. Dunlop, Margaret W. Ferguson, R. G. Forrest, Anne F. Fyfe, Margaret D. Giles, T. Gray, W. F. Harper, H. P. C. Harrison, J. E. Hooker, A. B. D. Hunter, J. Irvine, J. B. Jack, J. C. Jeffrey, J. Kennedy, Helen P. Kilpatrick, I. D. Leitch, J. T. MacBrayne, C. J. R. MacDonald, J. MacDonald, J. McGregor, W. L. McGregor I. D. Macintyre, D. A. MacLean, D. McNicol, Myra F. E. Neish, T. W. Palmer, J. M. Peden, A. A. Pow, J. H. Ramage, A. F. Ritchie, B. J. Smith, S. Smith, W. A. Souter, W. P. Soutter, R. Taylor, W. W. Tennant, J. T. Thompson R. T. Thomson, L. S. H. Thornton, A. D. Young (*in absentia*).

* With honours. † With high commendation.
‡ With commendation.

The following prizes, among others, were awarded:

University Prizes.—Bellahouston Gold Medals: Jane O. French (Mrs. Richard D. Millar), James H. Hutchison, Robert Kirk. Struthers Gold Medal: George M. Wyburn. Captain H. S. Ranken, V.C., Memorial Prize: J. S. Frew.

Special Class Prize.—Surgery, Macleod Gold Medal: D. Jamieson.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

There have been increases in the incidence of diphtheria, scarlet fever, and whooping-cough in England and Wales during the week; the notifications of pneumonia (primary and influenzal), measles, and cerebrospinal fever have fallen considerably. It is probable that the re-evacuation of susceptibles and the partial reopening of schools have been the chief factors causing the increases. Any investigation into the effect on the incidence of the infectious diseases of non-attendance at school or the distribution of school children into widely scattered units must also take into account other factors—such as defective ventilation of houses, particularly bedrooms, as a direct result of black-out precautions. The high incidence of influenza, German measles, and cerebrospinal fever among adults, both civilian and non-civilian, suggests that close aggregation of individuals and defective ventilation played a part in the spread of these diseases.

Apart from the rise recorded last week the figures for cerebrospinal fever have been falling for the last five weeks in the whole country, but in London and several large towns there has been a slight tendency to increase.

The recent paratyphoid fever outbreak in Glasgow and adjacent districts appears to be on the wane, although "secondary" cases continue, mainly in Glasgow itself. Of the 32 cases recorded in Scotland during the week 30 were connected with the outbreak: 23 in Glasgow, 1 in Lanarkshire, and 2 each in Renfrewshire, and Greenock and Paisley (both in the county of Renfrew). No official statement on the source and mode of spread of the outbreak has yet been made.

Vital Statistics

Dr. Elliot in the House of Commons gave on April 18 the following vital statistics for England and Wales for the available quinquennial periods and the last four years:

	Deaths	Crude rates per 1,000 living
*1911–15	2,598,719	14.3
*1916–20	2,589,333	14.4
1921–5	2,336,270	12.1
1926–30	2,386,721	12.1
1931–5	2,426,602	12.0
1936	495,764	12.1
1937	509,574	12.4
1938	478,829	11.6
1939 (provisional)	499,191	12.1

* For the years 1915–20 the mortality rates are based upon civilians only, but as in other years the numbers of deaths include those of non-civilians registered in England and Wales.

No. 14

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 6, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	436	38	86	4	5	35	4	11	1	—
Deaths		4	9				3	1		
Diphtheria	711	19	228	45	16	755	80	218	42	18
Deaths	15	—	5	1	1	18	3	6	2	1
Dysentery	48	8	34		1	25	4	32		—
Deaths			1	—	—			—	—	—
Encephalitis lethargica, acute	3	—	—	—	—	3	—	1	2	—
Deaths		—	1				—	2		
Enteric (typhoid and paratyphoid) fever	29	4	36	5	—	8	2	7	4	2
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas			61	11	4			73	8	9
Deaths		—	—				1	—		
Infective enteritis or diarrhoea under 2 years	31	4	7	7	7	41	10	9	3	4
Deaths										
Measles*	4,069	55	58		217		34	106		4
Deaths	3	—	—	2	6	4	—	—	1	—
Ophthalmia neonatorum	92	9	60	4	—	96	9	33		—
Deaths										
Pneumonia, influenzal†	951	56	9	12	21	1,161	120	14	8	18
Deaths (from influenza)	102	15	8	5	5	149	26	6	1	2
Pneumonia, primary			250	13				186	10	
Deaths‡		40		14	26		18		17	9
Polio-encephalitis, acute	—	—				3	—			
Deaths		—					—			
Poliomyelitis, acute	8	2	1	1	—	3	—	—		—
Deaths		—	—				—	—		
Puerperal fever	3	3	12		1	4	4	10	1	—
Deaths		—					1§			
Puerperal pyrexia	141	11	8		—	180	26	26		—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	841	36	138	32	68	1,568	140	233	37	75
Deaths	3	—	—	—	1	5	1	—	1	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough*	581	15	13		32		364	298		33
Deaths	3	—	—	1	—	24	4	9	2	2
Deaths (0-1 year)	442	40	94	29	43	389	73	77	36	17
Infant mortality rate (per 1,000 live births)						61	63			
Deaths (excluding still-births)	5,564	912	766	216	205	5,671	1,041	702	213	166
Annual death rate (per 1,000 persons living)			13.9	14.4	18.0	13.9	13.3	14.2	14.3	14.6
Live births	7,009	1,103	944	386	242	5,328	881	827	285	225
Annual rate per 1,000 persons living			19.1	25.8	21.3	13.1	11.2	16.7	19.2	19.8
Stillbirths	310	57	35			226	38	51		
Rate per 1,000 total births (including stillborn)			36			41	41	58		

* Made notifiable generally on November 1, 1939.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ Since January 1, 1940, figures for London (b) have been for deaths from all forms of pneumonia; the corresponding figures for 1939 relate to deaths from lobar pneumonia only.

§ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS.—All communications should be addressed to the Advertisement Manager (office hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Eireann (I.M.A. and B.M.A.), 95, Merrion Square, W., Dublin (telephone 62550 Dublin).

QUERIES AND ANSWERS

Diet in Jejunal Ulcer

Dr. R. M. RUSSELL (Blackrock, Co. Dublin) writes: I should be grateful for instructions as regards diet in a suspected case of jejunal ulcer in a man aged 72. Gastro-enterostomy was performed in 1921 for duodenal ulcer. The patient was told to live on tripe for three months after the operation, which he did, but no other instructions were given as regards diet. He has great discomfort and pain at the centre of the abdomen (not great pain), an empty feeling, and is extremely constipated. Because of the empty feeling the patient is inclined to take what disagrees with him. He is weak, and his weight, which after the operation in 1921 was up to 10 st. 7 lb, is 9 st. There is insomnia, and also some anaemia owing to occult blood some years ago.

Cramp in the Legs

Dr. T. J. HOLLINS (Battle) writes: In your issue of April 13 (p. 644) "Corvus" asks for suggestions for the treatment of persistent cramp in the legs at night time. After trying most of the so-called remedies for this very painful affection and finding them useless, I have found that the only remedy that offers any hope of success is a mechanical one—that is, a stout block of wood placed across the foot of the bed. Pressure of the feet on this block will prevent the spasm from coming on. Recently a patient of mine who suffered from cramp for years tried this with complete success.

Lieutenant-General Sir HAROLD FAWCUS writes: I have suffered from cramp in the legs for some time, and have found a very easy preventive. It is no more than to raise the head of the bed so that the legs are on a lower level than the trunk. The condition is due to varicosity of the veins in the legs. Perhaps this may assist "Corvus's" patient.

Income Tax

Appointments—Private Patients

"J. R." holds an appointment "on a whole-time basis, receiving a salary for hospital work and a proportion of fees for private practice earned in the hospital." He also holds other appointments elsewhere under the Emergency Medical Service. Is he assessable under Schedule D or Schedule E?

*** So far as remuneration from the hospital funds is concerned the liability is under Schedule E; the position may be different, however, with regard to the substantial amount received for private practice. If, as we gather, the patients come to him rather than to the hospital, so that the implied agreement for professional treatment is with him and not with the hospital, the earnings are in our opinion assessable under Schedule D. "J. R." would file a statement showing the gross fees as receivable by him, and would deduct the proportion taken by the hospital as an expense of carrying on the practice. It is not uncommon for total earnings to be divided for assessment between the two schedules—for example, in the case of an accountant who holds directorships or a solicitor who holds a public appointment.

B.M.A. Insurance Scheme

"N. W." took out an insurance policy under this scheme in 1933, and inquires as to an allowance.

*** The premiums on policies taken out under the B.M.A. scheme which provide for deferred annuities are allowable for income tax relief. "N. W." can claim repayment for the past six years if tax has been paid for those years.

LETTERS, NOTES, ETC.

Napkin Rash

Dr. P. W. F. MCILVENNA (Reading) writes: I would be interested to know if Dr. Mary Fisher has tried out the following method of prevention. After having been washed and dried in the usual way, the napkin should be steeped in a saturated solution of boric acid and hung out to dry without being rinsed. This will prevent the occurrence of ammoniacal decomposition of the urine; thus the associated dermatitis will not make its appearance. To my mind the condition is purely the result of chemical irritation of the skin, and thus I cannot see how the use of any antiseptic will be of prophylactic value.

Dr. M. D. ANDERSON (Glasgow) writes: If napkins are boiled each day as part of the routine of washing them any infection with ammonia-producing organisms and consequent ammonia dermatitis can be avoided. The method can be further recommended to mothers by pointing out that a few minutes' boiling in soapy water is the easiest way of removing stains from soiled napkins. I write as a mother of five children.

Rubella

Dr. DORIS M. TODD (Northallerton) writes: In May, 1929, there was an epidemic of rubella in the district where I was engaged on school medical inspection. One Friday afternoon I felt my posterior cervical glands enlarged and tender. As I was at a "dirty" school I asked the school nurse to see if I had perchance picked up any head lice. She reported "all clear," whereupon I said in jest, "I must have the German measles." At this time I had no rash and felt perfectly well. The following afternoon I went to a meeting, and on the way back felt "light-headed." On arrival home I took my temperature, which was 100° F., and saw I had some spots on the neck and chest. By the Sunday I was full out in the rash, temperature 102.5° F., and though I do not remember having any neuritis my gums were very tender and felt as though my teeth were falling out. This was a symptom that I had never seen mentioned in a textbook. From a diagnostic point of view I would like to remark that the posterior cervical gland enlargement occurred twenty-four hours before the other symptoms, and was the last symptom to subside.

Cod-liver Oil as Substitute for Butter

Dr. J. PIRIE (Leamington Spa) writes: It is important to note in these days of rationed butter that cod-liver oil is a useful supplement to food: its vitamin content is approximately 200 times that of fresh butter. If one objects to the taste of cod-liver oil it can be given in capsules, and small doses over a long period are more beneficial than large doses, against which the system revolts after a week or two.

Pediculosis in School Population

Dr. R. J. WILLSON (Haslemere) writes: Reading Dr. J. Alison Glover's account of evacuation (*Journal*, April 13, p. 629) I was struck by the official attitude that "at the end of school holidays" implies that many children will be lousy. Does this mean that at the beginning of every term "delousing" is done all over again? Any thinking person must know that an inspection *after warning* is just asking for a faked result. Who is responsible for the statement that many children must habitually harbour one or two nits?